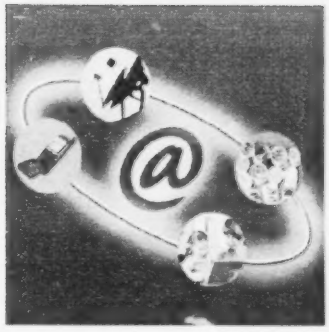
Catalogue no. 56F0004M — no. 016
ISSN: 1492-7918
ISBN: 978-1-100-10914-5

**Connectedness Series**

# How Canadians' Use of the Internet Affects Social Life and Civic Participation



by B. Veenhof, B. Wellman, C. Quell and B. Hogan

Science, Innovation and Electronic Information Division (SIEID)
7-A, R.H. Coats, Ottawa, K1A 0T6

Telephone: 1-800-263-1136

*This paper represents the views of the authors and does not necessarily reflect the opinions of Statistics Canada.*

Statistics Canada Statistique Canada

Canada

# Connectedness Series

The Series publishes analytical studies and research reports in the broad area of Connectedness. This includes cross-economy activities, such as the penetration and use of the Internet and electronic commerce, as well as industries in the Information and Communications Technologies sector, such as telecommunications, broadcasting and Internet services. It offers a statistical perspective in these emerging phenomena that are transforming the economic and societal landscape.

All papers are subject to peer and institutional review, as well as review by subject matter experts, as necessary.

The Series is produced by:
Science, Innovation and Electronic Information Division

**Director:** Paula Thomson

For further information:
Science, Innovation and Electronic Information Division
R.H. Coats Building, 7-A
Ottawa, Ontario, K1A 0T6
Telephone: 1 800 263-1136

*Cette publication est aussi disponible en français (nº 56F0004M au catalogue).*

**Note of appreciation**

Canada owes the success of its statistical system to a long standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

# How Canadians' Use of the Internet Affects Social Life and Civic Participation

*by B. Veenhof, B. Wellman, C. Quell and B. Hogan*

**Editor:** Ben Veenhof

**Production:** Lucienne Sabourin and Heather Berrea

**Review committee:** Philip Smith, Paul Johanis, Marcelle Dion, Louis Marc Ducharme, Paula Thomson, Vicki Crompton, Philip Cross.

December 2008

Catalogue no. 56F0004M, no. 16

ISBN: 978-1-100-10914-5

ISSN: 1492-7918

Frequency: Occasional

Published by authority of the Minister responsible for Statistics Canada

© Minister of Industry, 2008

All rights reserved. The content of this electronic publication may be reproduced, in whole or in part, and by any means, without further permission from Statistics Canada, subject to the following conditions: that it be done solely for the purposes of private study, research, criticism, review or newspaper summary, and/or for non-commercial purposes; and that Statistics Canada be fully acknowledged as follows: Source (or "Adapted from", if appropriate): Statistics Canada, year of publication, name of product, catalogue number, volume and issue numbers, reference period and page(s). Otherwise, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form, by any means—electronic, mechanical or photocopy—or for any purposes without prior written permission of Licensing Services, Client Services Division, Statistics Canada, Ottawa, Ontario, Canada K1A 0T6.

# Abstract

The Internet's rapid and profound entry into our lives quite understandably makes people wonder how, both individually and collectively, we have been affected by it. When major shifts in technology use occur, utopian and dystopian views of their impact on society often abound, reflecting their disruptiveness and people's concerns. Given its complex uses, the Internet, both as a technology and as an environment, has had both beneficial and deleterious effects. Above all, though, it has had transformative effects.

Are Canadians becoming more isolated, more reclusive and less integrated in their communities as they use the Internet? Or, are they becoming more participatory and more integrated in their communities? In addition, do these communities still resemble traditional communities, or are they becoming more like social networks than cohesive groups?

To address these questions, this article organizes, analyzes and presents existing Canadian evidence. It uses survey results and research amassed by Statistics Canada and the *Connected Lives* project in Toronto to explore the role of the Internet in social engagement and the opportunities it represents for Canadians to be active citizens. It finds that Internet users are at least as socially engaged as non-users. They have large networks and frequent interactions with friends and family, although they tend to spend somewhat less in-person time and, of course, more time online. An appreciable number of Internet users are civically and politically engaged, using the Internet to find out about opportunities and make contact with others.

The article's investigation of particular socio-demographic groups of special interest finds that: recent immigrants to Canada are especially apt to use the Internet to keep up with family and friends in their country of origin and to find out about activities that are relevant to them as they integrate in Canada; rural Canadians also value the Internet's ability to connect them with far-flung family and friends who have sought opportunities elsewhere; young adults are especially engaged in the Internet, and; senior citizens have become increasingly involved in using the Internet for communicating with family and socializing by playing games with others online.

The article concludes by discussing how the Internet is transforming social capital, community and Canadian society. Communities are no longer linked to neighbourhoods, and people mobilize social capital through a variety of specialized sources rather than relying on a single close-knit group of neighbours and relatives. Rather than being a separate "second life", the Internet is firmly and increasingly interwoven with the fabric of Canadian society, and is becoming more so over time.

# How Canadians' Use of the Internet Affects Social Life and Civic Participation

*by B. Veenhof, B. Wellman, C. Quell and B. Hogan*[1]

Ben Veenhof is with the Science, Innovation and Electronic Information Division at Statistics Canada. Barry Wellman is with NetLab at the Department of Sociology at the University of Toronto. Bernie Hogan, formerly of NetLab, is now with the Oxford Internet Institute at the University of Oxford. Carsten Quell is now with the Office of the Commissioner of Official Languages. At the time that this article was written, he was with the Policy Research Group at the Department of Canadian Heritage.

## 1.1 Introduction

"More people say heavy internet use is disrupting their lives" reported the Washington Post in November 2006 (Payne 2006), referring to a few reports that have raised concerns about "excessive Internet use" and even "Internet addiction". In the news item, the journalist argued that "there is still no consensus on how much time online constitutes too much or whether addiction is possible." An expert quoted in the report put it poignantly: "The Internet is an environment. You can't be addicted to the environment." Yet, other experts have argued that the Internet is transforming everyday life in the household, the community and at work.

The journalist's difficulty in reporting about the Internet as a disputed entity is similar to the challenges faced by the authors of this article. The Internet's complexity makes its impact on individuals—and society—hard to assess, and any assessment is likely to be controversial. For all its complexity, though, the Internet is evolving and already embedded in most Canadians' lives. It has entered the majority of homes and offices, and deeply affected the ways in which we communicate and exchange information.

When shifts in technologies and technology use occur, utopian and dystopian views of their impact on individuals and society often abound, reflecting their disruptiveness and people's concerns. The Internet's rapid and profound entry into our lives quite understandably makes people wonder how we have been affected by it. However, questions of the type: "Has the Internet been good or bad?" "Have our societies been weakened or strengthened through it?" are simplistic. Given its complex uses, the Internet—both as a bundle of technologies[2] and as an environment—has had effects both beneficial and deleterious, but above all transformative.

This article organizes, analyzes and presents some of the existing Canadian evidence. In doing so, we consider the interplay between the Internet and social cohesion. Without embarking on a long exploration of the origins and various meanings of "social cohesion,"[3] we proceed on the basis of the concept's core normative impulse: namely, that a healthy society is a socially cohesive society that requires the willingness of individuals to engage jointly in activities that help to enhance social capital and to develop communities of trust and reciprocity.

## 1.2 Isolationist, Participationist, Networked?

A critical issue is whether civic participation has shifted to new types of behaviour among younger age cohorts, such as less formal, more online activities. Traditional measures of civic participation, such as voting or watching the news, may not capture these new forms of community participation and public engagement. In an increasingly connected, digitized society, younger persons may be more apt to define communities based on interest rather than geography. The Internet may facilitate, and in some instances even be the technological requirement, for such interest-based communities to arise.

Our analysis of the available data for Canada is grouped around a basic set of questions:

- Are Canadians becoming more *isolated*, that is, more reclusive and less integrated in their communities as they use the Internet?
- Or, are they becoming more *participatory*, more integrated in their communities and more involved in social activities?
- In addition, are these communities continuing to resemble traditional communities or are they becoming transformed into ramified communities structured more as social *networks* than as cohesive groups?

### 1.2.1 Isolationist view

Evidence supporting the *isolationist* view would show that users of the Internet spend more time alone, and that they interact less with family, friends and their community. The underlying premise is time

1. Views expressed in this paper are strictly those of the authors and do not necessarily reflect those of Statistics Canada, the Government of Canada, Canadian Heritage, the Office of the Commissioner of Official Languages, the University of Toronto or the Oxford Internet Institute. The authors thank the Review Committee as well as the following persons for their comments on this paper: George Sciadas, Heidi Ertl, Anik Lacroix, Fred Gault, Larry McKeown, Daniel April, Marcel Bechard and Susan Crompton from Statistics Canada; Kristen Berg, Jeffrey Boase, Juan-Antonio Carrasco, Christian Catalini, Jessica Collins, Jennifer Kayahara, Tracy Kennedy, Guang Ying Mo, Paul Seaborn, and Sinye Tang from the University of Toronto; and Helen Hua Wang from the Annenberg School for Communication, University of Southern California. The authors also wish to thank Lucienne Sabourin and Heather Berrea for their assistance with production and dissemination.

2. While it is conventional to refer to the Internet in singular form, it represents a bundle of media, and is discussed in this paper as a general platform for social and relational communication.

3. For a discussion of social capital and social cohesion, see Policy Research Initiative (2003), Social Capital Workshop, June 2003: Concepts, Measurement and Policy Implications. http://policyresearch.gc.ca/page.asp?pagenm=socap.

displacement: time spent using the Internet supplants time spent establishing and nourishing "real world" relationships (Shaw and Gant 2002). In areas as diverse as in-person socializing, volunteering, youth engagement, museum visits, festival attendance and community participation, one would expect to see Internet users to be less involved than non-users or occasional users.

The isolationist view has had a number of data points to date. Putnam's *Bowling Alone* provided an array of data to argue that Americans' civic and social involvement had declined from the mid-1960s to the mid-1990s (Putnam 2000). He attributed this to a variety of causes, most notably the privatizing house-bound effects of television watching. Although Putnam wrote before the blossoming of the Internet, his writing sees email-based interaction to be inferior to in-person contact. Putnam's work has been controversial, and it has been criticized on both theoretical and methodological grounds (Fischer 2004, Kadushin 2002).

Kraut and associates (1998) made another major contribution to the isolationist view, especially as their findings were front page news in the *New York Times* (Harmon 1998). Studying a sample of newcomers to the Internet over time in Pittsburgh, they found a slight increase in the number of people who became depressed after six months of Internet use. However, most of these Internet newcomers never became depressed or alienated, and a follow-up study found that those with "better social resources"—including perceived social support, larger social networks, and being extroverted—often benefited from Internet use (Bessière et al. 2008, p. 58; see also Kraut et al. 2002). Findings from other studies also challenge the notion of a link between Internet use and depression, showing that Internet communication with known persons can decrease loneliness and increase social support (Larose, Eastin and Gregg 2001, Hamburger and Ben-Artzi 2000).

A more recent study used data from the U.S. *General Social Survey* to show that the number of people available to "discuss important matters with" had declined from an average of 2.94 in 1985 to 2.08 in 2004 (McPherson, Smith-Lovin and Brashears 2006). Like the aforementioned Kraut et al. study, this also made major news headlines. For example, one *Washington Post* columnist ignored the fact that the research had focused only on narrowly-defined very close ties to announce the advent of "American isolationism" (Mallaby 2006).

### 1.2.2 Participationist view

By contrast to the isolationist view, evidence supporting the *participationist* view would show that users of the Internet are at least as social and spend as much time with family, friends and in their community as those who do not use the Internet. The underlying assumption is that Internet use is synergistic with other forms of interaction, helping to maintain and to arrange contacts in between physical interactions. In fact, one might see an increase in the social interactions of users if online activities are considered to be as valid as their in-person counterparts. Volunteering, youth engagement, museum visits, artistic creation and consumption exist in the virtual world and may be far more accessible than in real life. Immigrants might find that technology eases their transition into a new society by allowing them to stay in touch with their countries of origin while building networks in Canada, especially when they live in remote communities. Youth might find greater opportunities online to become socially engaged.

Several studies by Wellman and associates have found that Internet users have as much in-person and phone contact as non-users. Moreover, heavy Internet users have as much contact as light users. Although two of these studies used a non-standard sample of visitors to the *National Geographic* website (Wellman et al. 2003), a third was a random sample of Americans (Boase et al. 2006), and a fourth was a random sample of residents of the Catalonia region of Spain (Castells et al. 2003).

National surveys in the United States have shown that Internet use intertwines with in-person and phone contact to increase the total amount of connectivity among friends and families. One study even found that Americans have increased their number of friends between 2002 and 2007, and that Internet users have more friendships (Wang and Wellman 2008). According to this World Internet Project study, by 2007, heavy Internet users had 15.0 friends, moderate users 16.5, but non-users only 11.7. Moreover, Internet users had 5.2 "virtual friends" who were only contacted online plus 1.5 "migratory friends" who had originally met online but were now also in-person contacts. The study also found that Internet users have more in-person contact with friends than do non-users and at least as much civic involvement. Another national study found that many Americans use the Internet extensively, with about one-third reporting spending three or more hours on it daily, and about two-thirds reporting spending one or two hours on it (Katz and Rice 2008). However, these studies have not examined time use in detail as do the U.S. and Canadian *General Social Surveys*.

Robinson and Martin (2008) have used U.S. *General Social Survey* time use data to analyze Internet use. They conclude that there is "little evidence of decreased visits with friends among those with highest email contacts vs. nonusers—nor with relatives, neighbors or at bars" (p. 18). However, with respect to overall Internet use (that is, email plus other uses), their conclusions are more in accord with time-displacement isolationism: "Among those using the Internet 10 or more hours weekly, visits with relatives were 13 occasions (per year) lower, with neighbors 9 visits lower (than among respondents who were non-users), and visits at bars were 3 lower" (p. 18). On the other hand, contacts with friends did not decrease.

A recent Canadian study by Veenhof (2006a), using the 2005 Canadian *General Social Survey* on time use reported that Internet users had less in-person contact than non-users, but that Internet users were interacting

more intensely in other ways. For example, they spent on average nearly half of their time online using email or chatting. Moreover, they also spent more time than non-users conversing with others over the phone (Veenhof 2006a). Another study, using 1998 and 2000 Canadian *General Social Survey* data, found that Internet users spent less time in social contact with household members, but more time with other persons outside the household. The study also found that Internet users were likely to cut back on other pursuits, such as television and sleep time, to a greater extent than they cut back on time dedicated to friends and family (Williams 2001). This article further analyzes the Canadian time use data and links it with findings from other Statistics Canada surveys.

In short, a variety of studies support the participationist view that Internet use does not negatively affect other forms of social involvement and may increase it. The evidence is consistent for email use, although the Robinson and Martin study raises some questions for overall Internet use. Like the isolationist studies reviewed above, many of these studies are based on American data and, except in a few cases, do not use detailed measures of time use.

### 1.2.3 Groups or Networks?

The third question is whether people continue to be integrated into rather solid groups of neighbours, kin and friends, or whether their communities have been transformed into more sparsely-knit, complex social networks. In such networked situations, people manoeuvre between—and link with—multiple, partial, specialized communities. The argument is that cars, planes, phones and the Internet all mean that people are less confined to their neighbourhoods for their social activities, that dual careers have supported complex networks that are increasingly friendship-based, and that the personal communication systems of mobile phones and the Internet are fostering person-to-person activities.

The main thrust of this research has been by Fischer (1982) in California, and Wellman and associates in East York, Toronto (Wellman 1979, Wellman, Carrington and Hall 1988, Wellman and Wortley 1990), with theorizing by Wellman (2001), Wellman and Hogan (2004), Castells (2000) and Boase (2008). These studies show that relationships are specialized—for instance, those who give emotional support rarely give financial support—spatially-dispersed, and combine a densely-knit core (often with immediate kin) with sparsely-knit clusters of ties with friends, neighbours and co-workers. It is noteworthy that this transformation towards a networked society began before the proliferation of the Internet.

Our conclusions will centre on the transformative impact and potential of the Internet. On the basis of the available evidence, preliminary as it may be, we believe that we should expect neither a dysfunctional society of loners, nor a blissful society of networked communities. What we are facing is a society that will be differently cohesive from the one we know. Where our traditional notions of cohesive communities might have envisioned neighbours that get together on an issue in a community centre, we now might see them network and organize in the online environment but with fewer physical gatherings. Where our ideal of a family with strong cross-generational ties might have been one where we see grandparents and grandchildren in each others' physical company, we now see grandparents using email to stay in touch with far-away grandchildren. And where we were accustomed to seeing the links of immigrants with their countries of origin grow ever weaker as their rootedness in Canada became ever stronger, we now see first-generation and second-generation Canadians using technology to keep their links firmly connected in their country of origin as well as in Canada.

These shifts raise a key question: Are the paradigms within which we currently understand and evaluate social cohesion able to capture the technological turn? In other words, we will be misled to conclude that our society is becoming less cohesive if our indicators of social cohesion only look at how busy our community centres are, how lively our neighbourhoods are, and how much in-person time grandparents and grandchildren spend together. Or, if the home ties of immigrants are weakening as a sign that they are becoming rooted in Canada, and so on. This may or may not be the case. Research can shed light on how the Internet, and the ways in which it is used, foster or discourage social cohesion.

This article describes how big the arenas of Internet-facilitated cohesion and connectedness have become in recent years.

## 2.1 Internet use and interaction with family, friends, and neighbours

The pervasiveness of computers and the Internet raises questions about the possible effects of increased 'screen-time' on personal interaction with friends, family and neighbours. Some survey data suggest a significant difference in the amount of time that Internet users spend in direct in-person contact with their family

## Note to readers

This study uses data from several Statistics Canada surveys as well as the *Connected Lives* surveys conducted in the East York area of Toronto and in Chapleau, Ontario by NetLab, from the Department of Sociology at the University of Toronto. The different sources used in this study cover different questions and concepts, and also differ in terms of coverage (sample used and reference periods). These differences should be kept in mind when examining data from different sources.

The Statistics Canada data used in this study come from five different sources: the *Canadian Internet Use Survey* (2005, 2007), *General Social Surveys* on time use (2005) and social engagement (2003), the *Canada Survey of Giving, Volunteering and Participating* (2004), and the *International Adult Literacy and Skills Survey* (2003).

Statistics Canada's 2007 *Canadian Internet Use Survey* (CIUS) was conducted in October and November 2007, and the sample covered more than 26,000 Canadians aged 16 years and over living in the ten provinces. The 2005 CIUS was conducted in November 2005 and more than 30,000 interviews were completed with adults aged 18 and over. Caution should be used comparing results from the 2005 and 2007 surveys, as the target population was extended in 2007 to include persons aged 16 and 17 in the sample. Responses are based on individuals' use of the Internet over the 12 month period preceding the survey. This study uses results from this survey to analyze Internet activities of Canadian adults based on their socio-demographic characteristics. This study also analyzes results from the social cohesion module of the 2005 survey, which have not yet been published elsewhere. For more information on the CIUS, please see: http://www.statcan.ca/english/sdds/4432.htm.

Two of the other sources used in this study come from separate cycles of Statistics Canada's *General Social Survey* (GSS): Cycle 19 (time use) is based on 2005 data and Cycle 17 (social engagement) is from 2003. Both surveys targeted Canadians aged 15 and over, living in the ten provinces. Approximately 25,000 Canadians completed the social engagement survey, and the 2005 time use survey yielded just under 20,000 responses. The latest cycle of the GSS (Cycle 22) covers social networks and is planned for a 2009 release. For more information, please see: http://www.statcan.ca/english/sdds/5024.htm. Detailed information for GSS Cycle 19 (time use) is available at: http://www.statcan.ca/english/sdds/4503.htm.

This study also uses Statistics Canada data from the 2004 *Canada Survey of Giving, Volunteering and Participating* (CSGVP) to understand Canadians' use of the Internet as a tool for finding and engaging in volunteering activities. The 2004 CSGVP sample covered over 22,000 Canadians aged 15 and over living in the provinces and territories. Additional details about the CSGVP are available at: http://www.statcan.ca/english/sdds/4430.htm.

Data from the 2003 *International Adult Literacy and Skills Survey* (IALSS), conducted by Statistics Canada and the Organisation for Economic Co-operation and Development (OECD), were also included in parts of this study. This survey included a module on respondents' use of information and communications technologies. For the purposes of this study, analysis is based on a representative sample of approximately 20,000 Canadians aged 16 to 65 living in the provinces and territories. For more information about the 2003 IALSS, please see: http://www.statcan.ca/english/sdds/4406.htm.

A series of detailed personal interviews conducted by NetLab, from the Sociology Department at the University of Toronto, also contributed to this study. The East York *Connected Lives* study was conducted in 2004-2005. This multi-stage study included questionnaires hand-delivered to a random sample of English-speaking literate adults in the East York area of Toronto and follow-up interviews with a 25% sub-sample. The sampling frame yielded 621 valid names and the survey had a response rate of 56%, yielding 350 completed questionnaires. All questionnaires were delivered between July 2004 and February 2005. 87 in-home interviews were completed between February and April of 2005. Additional details are available in Wellman, Hogan et al. (2006).

Chapleau is an isolated town of 2,300 in northern Ontario. As a result of a demonstration project by Bell Canada and Nortel Networks, most residents of the town obtained broadband Internet access in 2005 or 2006. To study this experience, the University of Toronto's NetLab did two sets of surveys, one set of interviews and four focus groups between 2005 and 2007. The analysis here is based on the second, post-broadband survey conducted in October 2006, with a random sample of 219 residents, complemented by 33 detailed interviews conducted in the summer of 2006. For more details about NetLab's Chapleau study, see Behrens, Glavin and Wellman (2007).

and friends. For instance, the 2005 Statistics Canada *General Social Survey* (GSS) on time use reveals that Internet users generally spend more time alone than non-users. Moreover, the amount of time spent alone increases with Internet use. For instance, moderate Internet users (5 minutes to one hour per day) spent almost half an hour (26.4 minutes) more time alone than non-users, whereas persons who spent more than one hour online per day were alone nearly two hours (119 minutes) more than non-users—once respondents of similar backgrounds in terms of their age, sex, number of children, education and other factors were compared in a multivariate model[4] (Table 1).

The reduced in-person contact of the Internet's heavier users was not restricted to certain types of people: those who spent more than one hour online for personal reasons during the day spent approximately one hour less with family members living in the household,[5] as well as one hour less with relatives and friends living outside the household. This included, on average, about 29 minutes less with their spouse, 28 minutes less with their children, and 31 minutes less with friends outside the home. Chart 1 summarizes the overall differences between Internet users and non-users in terms of their total time in personal contact with household members and non-members per day, again controlling for several socio-demographic factors (see notes beneath Chart 1 for the full list).

The timing of Internet use also mattered, as weekend use was associated with even greater declines in time spent on in-person contact with friends and other people outside the household than use of the Internet on weekdays (Veenhof 2006a). This finding is not unexpected, as most people do not work on weekends and have more discretionary time then.

**Table 1**
**Average time spent per day, in-person contact with others, Internet users and non-users, Canada, 2005**

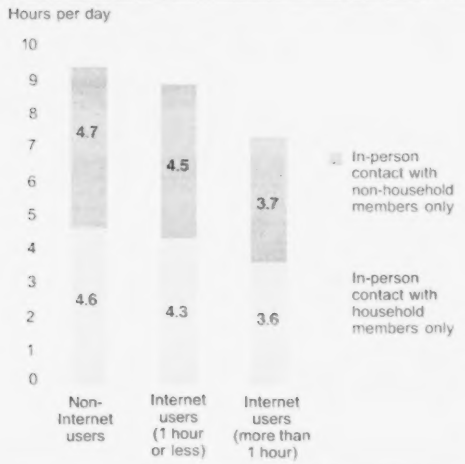
| | Non-users | | Internet users (1 hour or less) | | | | Internet users (more than 1 hour) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Time | Adj. time[1] | Time | Difference | Adj. time[1] | Adj. difference | Time | Difference | Adj. time[1] | Adj. difference |
| | time in minutes | | | | | | | | | |
| No one (alone)[2] | 376.3 | 374.2 | 396.6 | 20.4* | 400.6 | 26.4** | 473.1 | 96.8** | 493.2 | 119.0** |
| Spouse/partner[3] | 209.8 | 205.0 | 166.6 | -43.1** | 190.9 | -14.1** | 147.8 | -62.0** | 176.1 | -28.9** |
| Household children under age 15 | 86.3 | 85.6 | 68.9 | -17.3** | 73.7 | -12.0** | 56.0 | -30.3** | 57.8 | -27.9** |
| Parents or parents-in-law not living in the household[4] | 13.7 | 14.1 | 8.6 | -5.0** | 7.4 | -6.8** | 12.4 | -1.3 | 8.3 | -5.8 |
| Friends not living in the household | 86.7 | 90.4 | 99.6 | 12.9* | 88.7 | -1.7 | 92.3 | 5.6 | 59.6 | -30.8** |

* difference from non-users is statistically significant at the 95% confidence level ($p < .05$)
** difference from non-users is statistically significant at the 99% confidence level ($p < .01$)
1. Adjusted figures control for age, sex, number of children aged 14 and under in respondent's household, day of week, education level, and time spent at work.
2. Adjusted figures for time spent alone also control for number of persons living in the household.
3. Adjusted figures for time spent with spouse/partner also control for whether respondent has a spouse or partner.
4. Adjusted figures for time spent with parents and parents-in-law not living in the household also control for whether parents and parents-in-law live in the household.

**Source:** Statistics Canada, General Social Survey, Cycle 19: Time Use, 2005. An expanded version of this table initially appeared in Veenhof (2006a).

4. The 2005 GSS on time use captured personal use of the Internet and does not include use for work-related purposes. Among Internet users in the GSS sample, 57% used the Internet for five minutes to one hour during the day, while the remaining 43% reported using the Internet for more than one hour. In order to reduce response burden, respondents were not asked to report episodes of activities that lasted less than five minutes in duration. For a full list of control variables used to produce the adjusted figures, see the notes beneath Table 1. Estimates were produced using the multiple classification analysis (MCA) technique.
5. Estimates of time spent with family members living in the household also control for number of persons living in the household.

**Chart 1**
**Average time spent per day, in-person contact with household members and non-members, Canada, 2005[1]**




1. All figures are adjusted to control for age, sex, number of children aged 14 and under in respondent's household, day of week, education level and time spent at work. Adjusted figures for time spent with household members also control for number of persons living in the household.

**Source:** Statistics Canada, General Social Survey Cycle 19: Time Use, 2005.

Data from the same survey also show that Internet users spent less time than non-users engaged in traditional social activities, such as socializing with others, having meals together with household members, and playing with children (Table 2). Declines in time spent with household members on various activities, including having meals, are trends that have been occurring over time (Turcotte 2007, Amato et al. 2008) and are not just restricted to Internet users. Nonetheless, 2005 data show that Internet users spent even less time than non-users engaging in these activities with household members. However, Internet users did not differ significantly from non-users in terms of the amount of time they spent conversing in-person with other household members. Moreover, they spent more time talking on the phone than non-users of the Internet. Results from an earlier Statistics Canada and OECD survey, the 2003 *International Adult Literacy and Skills Survey*, also revealed that regular computer users used mobile phones more frequently than casual users (Veenhof 2006b). Phone use is often a social activity in its own right.

Turning to relationships with neighbours, the 2005 GSS reveals that those who spent more than one hour on the Internet during the day were less likely to say that they knew "most" or "many" of their neighbours (39.9%) compared with Internet non-users (45.8%) (Veenhof 2006a). The Internet's heaviest users tend to be young persons, and many of them have lived in their neighbourhoods for shorter periods of time than non-users. As time spent in a neighbourhood is often related to the number of acquaintances as well as

**Table 2**
**Average time spent per day on traditional social activities, Internet users and non-users, Canada, 2005[1]**

| | Non-users | | Internet users (1 hour or less) | | | | Internet users (more than 1 hour) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Time | Adj. time[1] | Time | Difference | Adj. time[1] | Adj. difference | Time | Difference | Adj. time[1] | Adj. difference |
| | minutes per day | | | | | | | | | |
| Socializing (without meals) | 25.6 | 26.3 | 20.8 | -4.8* | 19.5 | -6.8** | 23.3 | -2.3 | 16.6 | -9.7** |
| Socializing (with meals, excluding restaurant meals) | 30.2 | 30.6 | 25.1 | -5.1* | 24.9 | -5.7* | 22.0 | -8.2** | 16.6 | -14.0** |
| Socializing at bars, clubs (without meals) | 4.1 | 4.3 | 3.6 | -0.5 | 2.9 | -1.4 | 4.7 | 0.6 | 3.0 | -1.3 |
| Playing with children | 5.8 | 5.9 | 4.6 | -1.2 | 4.5 | -1.4* | 2.7 | -3.1** | 2.3 | -3.6** |
| Face-to-face conversation with household members[2] | 5.7 | 5.7 | 6.5 | 0.8 | 7.0 | 1.3 | 5.0 | -0.7 | 5.1 | -0.6 |
| Talking on the phone | 4.4 | 4.4 | 6.7 | 2.3** | 6.7 | 2.3** | 7.3 | 2.9** | 7.2 | 2.8** |

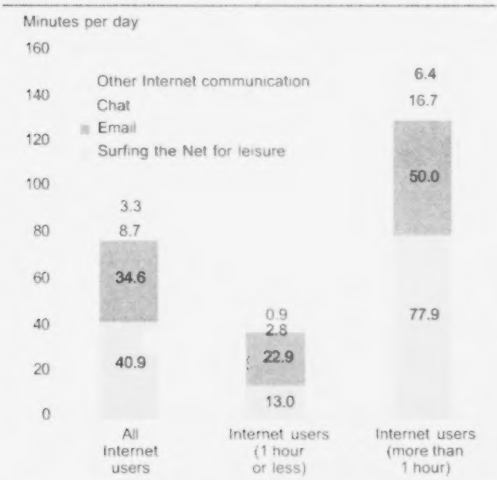
* difference from non-users is statistically significant at the 95% confidence level ($p < .05$)
** difference from non-users is statistically significant at the 99% confidence level ($p < .01$)
1. All figures are adjusted to control for age, sex, number of children aged 14 and under in respondent's household, day of week, education level and time spent at work.
2. Adjusted figures for face-to-face conversation with household members also control for number of persons living in the household.

**Source:** Statistics Canada, General Social Survey, Cycle 19: Time Use, 2005.

communication patterns (Ball-Rokeach, Kim and Matei 2001), it is important to compare Internet users with non-users who have lived in their neighbourhoods for similar time periods. The gap in the proportion of persons who said they knew most or many of their neighbours shrinks and is no longer statistically significant when the results are compared among Internet users and non-users who lived in their neighbourhood for at least 10 years.[6]

Although Internet users spent less time in direct in-person contact with others, they spent a considerable amount of their time on the Internet engaging in activities involving social interaction in other forms. Chart 2 uses the 2005 GSS time use data to reveal the extent to which Internet users devoted their time online to certain activities involving interaction with others, such as email and online chatting. The latter was particularly popular among teens, as Internet users aged 15 to 18 spent an average of 39 minutes a day engaged in this activity. By comparison, the average time spent chatting online among all Internet users was only about 9 minutes per day.

**Chart 2**
**Average time spent per day by Internet users on email, chatting and other Internet communication, Canada, 2005**




**Source:** Statistics Canada, General Social Survey Cycle 19: Time Use, 2005.

Email, as well as instant messaging, can be important tools for keeping in touch with both family and friends. Data from Statistics Canada's GSS on social engagement show that in 2003, nearly two-thirds (65.4%) of Canadian Internet and email users aged 15 and up used the Internet to communicate with friends in the previous month, and a sizeable proportion (54.2%) of these Canadians also used the Internet to communicate with relatives (Table 3).

**Table 3**
**Percentage of Internet/Email[1] users who used the Internet in the previous month to communicate with family and friends, Canada, 2003**

| | With relatives | With friends |
|---|---|---|
| | % of Internet/Email users | |
| **Total** | 54.2 | 65.4 |
| **Sex** | | |
| Male | 49.7 | 63.7 |
| Female | 58.8 | 67.2 |
| **Age** | | |
| 15 to 24 | 50.1 | 77.9 |
| 25 to 34 | 58.9 | 71.2 |
| 35 to 44 | 53.8 | 61.6 |
| 45 to 54 | 50.5 | 54.5 |
| 55 to 64 | 56.0 | 56.7 |
| 65 and older | 65.0 | 60.0 |
| **Educational attainment** | | |
| Less than high school diploma | 44.9 | 60.5 |
| High school diploma | 45.7 | 53.9 |
| Some post-secondary | 54.1 | 69.6 |
| Certificate/diploma from college or trade/technical school | 52.6 | 60.3 |
| University degree | 65.1 | 75.5 |
| **Immigration status** | | |
| Canadian-born | 52.6 | 64.8 |
| Immigrated before 1985 | 56.7 | 63.1 |
| Immigrated 1985 to 1994 | 57.3 | 69.1 |
| Immigrated 1995 to 2003 | 68.0 | 74.8 |
| **Location[2]** | | |
| Larger urban centres (CMA/CA) | 55.0 | 67.3 |
| Rural and small town (non CMA/CA) | 49.8 | 56.0 |

1. This table covers individuals who said they used the Internet or email (or both), for personal use, from any location, in the 12 months preceding the survey.
2. Prince Edward Island is included under 'rural and small town'.

**Source:** Statistics Canada, General Social Survey, Cycle 17: Social Engagement, 2003. For a different version of this table, focusing on the population aged 25 to 54, see Schellenberg (2004).

6. Among persons who have lived in their neighbourhoods for at least 10 years, 61.3% of Internet non-users said they knew "most" or "many" of their neighbours compared to 56.7% of persons who used the Internet for more than one hour per day. This difference is not statistically significant.

Based on the same data source, women were significantly more likely than men to use the Internet to communicate with both friends and family. The difference between the sexes was more pronounced in terms of communicating with relatives than with friends.

Age also played a role. While young Canadians were most likely to use the Internet or email to communicate with friends, older users (in particular senior citizens) were most likely to use the Internet to communicate with relatives. In fact, the percentage of Internet/email users 65 and older using the Internet for this purpose (65.0%) was significantly higher than the proportion of Internet users in all other age groups (Table 3). Many older Canadians have large and dispersed extended families and, for some, email can be an efficient means of keeping in touch (see also section 3.4, 'Internet use by older Canadians').

Other factors were also significantly associated with use of the Internet to communicate with friends and family. University-educated and urban Canadians were more likely to use the Internet for these purposes. Recent immigrants, defined as those who came to Canada in 1995 or later) not only used the Internet more than other Canadians to communicate with family, but were also slightly more likely than other Canadians to use the Internet to communicate with friends (for more, see Section 3.2, 'Internet use among new Canadians').[7]

To provide more nuanced information, we turn to a detailed study of email practices among residents of the East York area of Toronto (for more information on the East York study conducted by NetLab at the University of Toronto, please refer to the accompanying 'Note to Readers' on p. 8). The study's combination of survey and interview evidence shows that email is often used to maintain regular in-person contact with socially-close ties, such as close friends and relatives not living inside the household. For example, 72% of email-using respondents made plans with close ties via email, and 68% used email to make plans with weaker ties.[8]

The East York data suggest that rather than replacing in-person contact, email and instant messaging are often used to supplement and enhance existing relationships. Those who sent more than ten emails a week to friends and family did not restrict themselves to email when they made plans. They used *all media* to make plans more often than those who emailed less than ten messages or those who did not email friends and family at all. They used the Internet to maintain ties in between get-togethers and to arrange future in-person encounters. Unlike in-person and telephone contact, email contact is independent of distance (Mok, Carrasco and Wellman 2008). As such, email has become a type of social activity rather than an escape from it. Furthermore, evidence from prior NetLab studies has shown that individuals who are frequent users of email have larger extended networks (e.g. Boase et al. 2006). This suggests that email has a particularly useful place in maintaining ties where other media might not be as efficient or as convenient. For instance, email is often used to share information and pictures rather than merely as a means to chat socially. Such sharing has been a successful way for people to maintain a sense of community with those far away. As well, its asynchronous nature can serve well across time zones or in situations where live chatting is not to someone's taste. That said, NetLab's East York interviews suggest that of all Internet media, only instant messaging substitutes for in-person socializing (Carrasco and Miller 2006). This makes sense given that instant message conversations can span hours.

Statistics Canada's GSS on time use also asked respondents to identify the number of people with whom they feel very close, outside the home. Results revealed that Internet users, for the most part, did not differ significantly from non-users in terms of the number of close ties they had outside the home (Table 4). Similarly, the NetLab study in East York found only modest, insignificant differences in network size and composition between internet users and non-users: users had slightly fewer family ties and more friend ties. What is noteworthy is that the East York study examined weaker ties as well as strong, very close ties, and again found no statistically significant differences between users and non-users (Wellman and Hogan et al. 2006).

Finally, the Statistics Canada time use survey shows that while Internet users (especially the heaviest users) spent less time in direct physical contact with others, they were as likely as non-users to desire spending more time with family and friends. When asked about how they would spend more time if they could, spending time with family and friends was the most common activity mentioned by Internet users and non-users alike (Veenhof 2006a). Given the Internet's popularity for communicating with family and friends and some evidence that Internet users also have elevated telephone use (Wellman et al. 2003, Wellman and Hogan et al. 2006, Veenhof 2006a), it is clear that Internet users have much social interaction even if their in-person contact is somewhat lower.

7. Differences among recent immigrants and all other Canadians in use of the Internet to communicate with both relatives and with friends were statistically significant at the 95% level of confidence.
8. Social network analysis often partitions one's contacts with other people into strong ties and weak ties. While there is no precise boundary, strong ties generally provide one or more of the following: intimate social support (measured as those with whom one "discusses important matters"), help in times of need, or regular and intentional social contact (that is to say, they actively seek each other out regularly, rather than 'bump into each other'). Weak ties are those individuals who are socially close to a person, but not close enough to fulfil those criteria (Boase et al. 2006).

**Table 4**
**Number of close relationships outside the home, Internet users and non-users, Canada, 2005**

| | Non-users | | Internet users (1 hour or less) | | | | Internet users (more than 1 hour) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Adj.[1] | Total | Difference | Adj.[1] | Adj. difference | Total | Difference | Adj.[1] | Adj. difference |
| | number of people respondent feels "very close to" | | | | | | | | | |
| Members of immediate family (including parents, siblings, adult children or in-laws)[2] | 4.1 | 4.1 | 3.6 | -0.5** | 3.8 | -0.2 | 3.5 | -0.6** | 3.7 | -0.3 |
| Other relatives | 2.9 | 2.9 | 2.9 | 0.0 | 2.8 | 0.0 | 2.5 | -0.4 | 2.5 | -0.4* |
| Work colleagues[3] | 2.3 | 2.3 | 2.6 | 0.3 | 2.6 | 0.3 | 2.2 | -0.1 | 2.2 | -0.1 |
| Neighbours[4] | 1.4 | 1.4 | 1.5 | 0.0 | 1.5 | 0.1 | 1.3 | -0.2 | 1.3 | -0.1 |
| Other people | 4.8 | 4.9 | 5.6 | 0.7** | 5.4 | 0.6* | 4.9 | 0.1 | 4.7 | -0.1 |
| Total[5] | 15.2 | 15.2 | 16.5 | 1.3 | 16.6 | 1.4 | 14.2 | -1.0 | 14.3 | -0.9 |

* difference from non-users is statistically significant at the 95% confidence level ($p < .05$)
** difference from non-users is statistically significant at the 99% confidence level ($p < .01$)
1. Adjusted figures control for age and sex.
2. Adjusted figures also control for whether mother, father, mother-in-law and father-in-law live in the household.
3. Adjusted figures also control for whether respondent's main activity during last 7 days was work.
4. Adjusted figures also control for whether respondent has lived in neighbourhood for 10 years or more.
5. Adjusted figures for total also control for whether mother, father, mother-in-law, father-in-law live in the household, whether respondent's main activity in last 7 days was work, and whether respondent has lived in neighbourhood for 10 years or more.

**Source:** Statistics Canada, General Social Survey, Cycle 19: Time Use, 2005. Adapted from Veenhof (2006a).

## 2.2 Internet use and community participation

Statistics Canada's 2005 *General Social Survey* (GSS) on time use found that 38.5% of those who used the Internet for more than one hour a day described their sense of belonging to their community as "somewhat" or "very" weak, compared to 35.2% of those who used the Internet for one hour or less, and 31.6% of non-users (Veenhof 2006a).[9] Nonetheless, other survey data reveal that age is correlated with a sense of community belonging, with younger Canadians more likely to have a somewhat or very weak sense of belonging to their local community (Schellenberg 2004). When the 2005 GSS data are re-examined by selecting only young persons aged 15 to 25, the gap in perceptions of community belonging among the Internet's heavier users and non-users shrinks and is no longer statistically significant.[10]

Similar to sentiments of neighbourhood belonging, feelings of community belonging tend to be most prevalent among individuals who have lived in their area for long periods of time (Schellenberg 2004). Since more Internet non-users in the 2005 GSS had lived in their city or community for ten years or more compared with Internet users, it may only be natural that Internet users were less likely to describe a strong sense of belonging to their immediate physical communities. In fact, differences in perceptions of community belonging among persons using the Internet for more than one hour per day and non-users were no longer statistically significant once the comparison was restricted to persons who had lived in their communities for ten years or more.

Other survey sources reveal in fact that many Internet users are taking advantage of their Internet connections to become more actively involved in their communities. Results from Statistics Canada's *Canadian Internet Use Survey* (CIUS) show that 44.2% of Canadians who used the Internet from home went online to research community events in 2007. Such activity was particularly common among university-educated and urban Canadian home Internet users. Table 5 also reveals some differences in the use of the Internet to research community events among age groups.

Interviews with individuals in NetLab's East York study also reveal that the Internet was the single most used source for obtaining information about cultural and community events (Wellman and Hogan et al. 2006, Kayahara and Wellman 2007). Almost every East York respondent who had an Internet connection reported how useful it was for information, even more so than for social interaction.

9. Only the difference between those who used the Internet for more than one hour and non-users was statistically significant ($p < .05$).
10. While roughly the same proportion of non-users (36.7%) and moderate Internet users (36.4%) aged 15 to 25 described their sense of community belonging as "somewhat" or "very" weak, a slightly higher proportion (40.9%) of young persons who spent more than one hour online during the day felt this way. However, none of these differences were statistically significant.

**Table 5**
**Percentage of home Internet users[1] who used the Internet to research community events, Canada, 2007**

| | % of home Internet users |
|---|---|
| **Total** | 44.2 |
| **Sex** | |
| Male | 42.5 |
| Female | 46.0 |
| **Age** | |
| 16 to 24 | 41.7 |
| 25 to 34 | 50.3 |
| 35 to 44 | 49.8 |
| 45 to 54 | 44.3 |
| 55 to 64 | 36.9 |
| 65 and older | 27.5 |
| **Educational attainment** | |
| Less than high school diploma | 28.2 |
| High school diploma | 40.4 |
| Some post-secondary | 45.1 |
| Certificate/diploma from college/trade school/university | 43.8 |
| University degree | 54.6 |
| **Location** | |
| Urban | 46.0 |
| Rural and small town | 37.1 |

1. This table covers individuals aged 16 and older who said they used the Internet from home for personal use in the 12 months preceding the survey.

**Source:** Statistics Canada, Canadian Internet Use Survey, 2007.

Not only do Internet users find out about community events online but some use the Internet to carry out their activities as a member of a community organization, whether by communicating with other organization members, promoting organizational events, or engaging in other related activities. Survey data from Statistics Canada's GSS on social engagement show that as far back as 2003, nearly one-quarter (23%) of Canadians who were involved in at least one group or organization conducted at least part of their involvement through the Internet (Schellenberg 2004). Interviews from NetLab's East York study corroborate this, with numerous individuals reporting the relevance of email in maintaining community participation between meetings and events (Wellman and Hogan et al. 2006).

While results from Statistics Canada's 2005 GSS on time use show that the Internet's heaviest users spent less time attending sports, movies, and other events in their community (see Veenhof 2006a), these Internet users also expressed more enjoyment in participating in clubs and social organizations than non-users of the Internet. The 2003 *International Adult Literacy and Skills Survey* also found that both moderate and heavy home computer users were more likely than less intensive computer users to be involved with cultural, education or hobby groups during the previous year (Veenhof 2006b).[11]

In addition to their immediate physical communities, Internet users are also contributing to online communities. Results from Statistics Canada's 2007 CIUS show that one-fifth (20.3%) of home Internet users aged 16 and over contributed content by blogging, posting images, or participating in online discussion groups or message boards, for example. These activities were particularly popular among young persons, as the survey found that over one-half of those contributing such content were under the age of 30 (Statistics Canada 2008).

## 2.3 Internet use and political participation

Signs that fewer people are turning up at the polls in many established democracies (Niemi and Weisberg 2001, Putnam 2000, Lijphart 1997) suggest that contemporary North Americans are not as politically engaged as their predecessors. In reality, the nature of political participation is changing. Traditional measures of civic participation, such as voter turnout rates, may no longer adequately capture the extent to which people are politically involved. Many years ago, analysts observed a shift in civic participation away from traditional forms of political engagement, such as voting, to more unconventional activities, such as boycotts, petitions, and demonstrations (Niemi and Weisberg 2001, Inglehart 1990). The times may be changing, for while it is too early to make definitive statements, some reports show more involvement by young, computer-literate Americans in political campaigns (Heilemann 2007).

People use multiple information and communication media to gather information about political issues and to voice their opinions and concerns about these issues. The type of media consumed is important, especially as it affects political participation (Keown 2007, Jennings and Zeitner 2003, Putnam 2000, Shah, McLeod and Yoon 2001, Howard 2006, Xenos and Moy 2007). Before the advent of the Internet, people were generally limited in terms of access to news by what was available in their local media markets and network news. People expressed themselves by writing to politicians and local officials, and sending letters to newspapers or other media outlets with no guarantee that an individual's letter would be shared with other members of the public. Further, in Canada, the number of media sources consumed tends to vary regionally, suggesting that the variety of media used may be directly related to the size of the media marketplace, among other factors (Keown 2007).

The arrival of the Internet has changed this dynamic. News choices are no longer restricted to what is available in local markets. According to the *Toronto Star*, newspaper readership has skyrocketed, once online versions are taken into account (Olive 2007).

11. This study measured time spent on computers generally as opposed to the Internet. Moderate computer users were defined as individuals spending between 10 and 30 hours on their home computer in a typical month, and heavy users were defined as individuals spending 30 hours or more on their home computer in a typical month.

Data from Statistics Canada's CIUS show that the majority of Canadian home Internet users (63.7%) went online in 2007 to read about news or sports. Many online news sites also offer other advantages over traditional newspapers: information can be delivered more quickly, sites often incorporate video and links to other information relevant to the story, and some sites are genuinely interactive (Olive 2007). As well, Internet users can express their opinions on political and social issues that are important to them, and share them with an audience without having to go through traditional filters such as a newspaper editor. This can be achieved using email, a blog, an Internet message board, or the 'comments' feature of a news site, for example. Although Internet websites and message boards often have editors or moderators, the Internet also provides many places for unmoderated expression, and the general trend is that the ability of Internet users to voice their opinions is expanded. Their opinions are more diversified and more widely disseminated than traditional word-of-mouth.

Indeed, the 2003 GSS on social engagement found that few Canadians (17%)—Internet users or otherwise—who followed the news several times a week relied on only one media source. When only one source was used, it was often television (Keown 2007).

Both Canadian and U.S. data show that lower rates of political participation are associated with using television as the only source of news (Keown 2007, Jennings and Zeitner 2003, Putnam 2000, Shah, McLeod and Yoon 2001).

While certain political activities, such as contacting newspapers or politicians, and attending public meetings, are most common among middle-aged and older adults, it is younger Canadians who are most apt to search for information on political issues. According to the GSS on social engagement, in 2003 approximately one-third (33.2%) of Canadians aged 15 to 29 searched for information on political issues (online or offline) while only one-quarter of those aged 30 to 49 (25.3%) and 50 to 64 (24.5%) did so (Schellenberg 2004).

More recent data from the social cohesion module of the 2005 CIUS confirm that much of this information searching is done online. In 2005, one-half (51.4%) of Canadians who used the Internet from home said they went online to read newspapers or magazines about a particular social or political issue, with young Canadians most active in this regard (Table 6).

Not only are Canadians going online to search for information related to social and political issues from mainstream sources, they are also using the Internet

**Table 6**
**Percentage of home Internet users[1] who used the Internet to read or exchange information about social or political issues, Canada, 2005**

| | Read online newspapers or magazines about a particular social or political issue | Read what other Canadians think about a particular social or political issue | Corresponded with other Canadians about a particular social or political issue |
|---|---|---|---|
| | % of home Internet users | | |
| **Total** | 51.4 | 29.2 | 13.8 |
| **Sex** | | | |
| Male | 57.8 | 35.2 | 17.2 |
| Female | 45.1 | 23.3 | 10.5 |
| **Age** | | | |
| 18 to 24 | 58.3 | 35.4 | 21.3 |
| 25 to 34 | 56.7 | 33.7 | 13.8 |
| 35 to 44 | 50.2 | 27.6 | 11.7 |
| 45 to 54 | 48.1 | 27.0 | 11.0 |
| 55 to 64 | 45.5 | 24.0 | 13.1 |
| 65 and older | 40.7 | 20.6 | 13.1[E] |
| **Educational attainment** | | | |
| Less than high school diploma | 37.2 | 18.2 | 7.3[E] |
| High school diploma | 44.0 | 23.0 | 10.2 |
| Some post-secondary | 54.9 | 34.1 | 18.8 |
| Certificate/diploma from college/trade school/university | 48.1 | 24.5 | 11.3 |
| University degree | 63.1 | 40.5 | 19.4 |
| **Location** | | | |
| Urban | 53.2 | 30.5 | 14.4 |
| Rural and small town | 43.8 | 24.0 | 11.6 |

[E] - use with caution
1. This table covers individuals aged 18 and older who said they used the Internet from home for personal use in the 12 months preceding the survey.
**Source:** Statistics Canada, Canadian Internet Use Survey, 2005.

to find out what other Canadians think and to correspond with others. Nearly one-third (29.2%) of Canadian home Internet users read other Canadians' comments and posts concerning political and social issues in 2005, and 13.8% said they used the Internet to correspond with Canadians about specific political or social issues. Thus, the Internet provides not only an alternative to mainstream media as an information source, but also a place for politically-motivated individuals to contact each other and share their views. Once again, young adults tended to be most active in terms of reading what other Canadians think about particular issues.

Table 6 also shows that male home Internet users were more likely than female users to read online newspapers about particular issues, to read other Canadians' comments and to correspond with other Canadians about these issues. Education and location also mattered. A significantly higher proportion (63.1%) of those with a university degree used the Internet to read online newspapers or magazines about particular social or political issues in 2005, compared to individuals with any other level of educational attainment. Those with a university degree or some post-secondary schooling were also significantly more likely than those in other groups to have read other Canadians' comments or corresponded with other Canadians about social or political issues online.

The political involvement of computer users is not confined to online activity. Perhaps not surprisingly, data from the 2003 *International Adult Literacy and Skills Survey* (IALSS) show that regular home computer users were also more likely to be involved in political organizations than those who used computers less frequently or not at all: 5.5% of Canadians who spent at least 30 hours a month on their home computers were a member of a political organization in 2003, compared to only 3.7% of those who used their PCs for less than 10 hours a month (Veenhof 2006b).

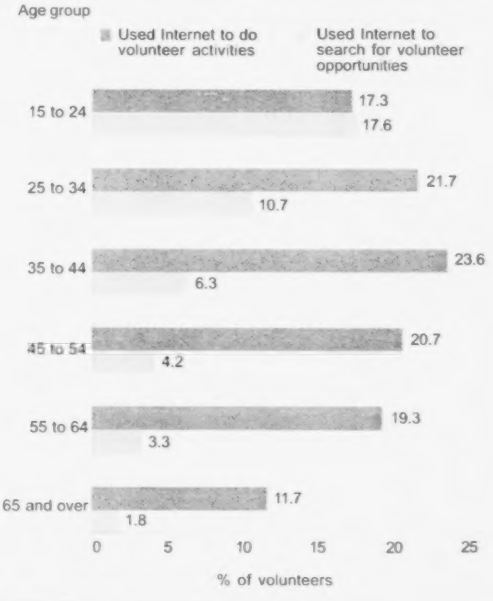
While many Canadians use the Internet for information about political or social issues, most have not abandoned traditional sources of information. Although some Internet users report spending less time with other media (notably television) since starting to use the Internet (Kraut et al. 2005, Dryburgh 2001, Williams 2001), Internet users remain active consumers of other media. Findings from Statistics Canada's GSS on time use (2005) show that Internet users did not differ significantly from non-users in terms of the time they spent using traditional media, and in fact spent more time reading books than non-users of the Internet (Veenhof 2006a, Veenhof and Lecavalier 2006). These findings are quite similar to those of the 2003 IALSS, which found that heavy computer users in many countries spent more time than casual users watching television, and were more likely to be frequent readers (Veenhof 2006b). Other surveys of Internet users' media habits have also reported elevated engagement in traditional reading activities by Internet users (Cole and Robinson 2002, Pronovost 2002).

In sum, the evidence suggests that Internet users are not isolating themselves from other sources of information, but are using the Internet to gather and exchange additional information about political or social issues. Their use of the Internet complements—rather than replaces—traditional sources of information.

## 2.4 The Internet and volunteering

Volunteering is a common way in which people can engage with their communities. The incidence of volunteering in Canada is highest among young adults, although the time spent on volunteer activities is actually higher among older age groups (Hall et al. 2006). Some Canadians are using the Internet as an instrument in this regard, by researching volunteer opportunities, communicating with other volunteers and sometimes other members of the public. The Statistics Canada 2004 *Survey of Giving, Volunteering and Participating* found that 8% of volunteers used the Internet to seek out volunteer opportunities, and about 20% of volunteers used the Internet in some way during their volunteer activities (Hall et al. 2006). Contrary to perceptions of youth disengagement, it is young Canadians who most actively used the Internet to search for volunteer opportunities (Chart 3).[12]

**Chart 3**
**Percentage of volunteers who used the Internet to search for volunteer opportunities and to do volunteer activities, by age group, Canada, 2004**



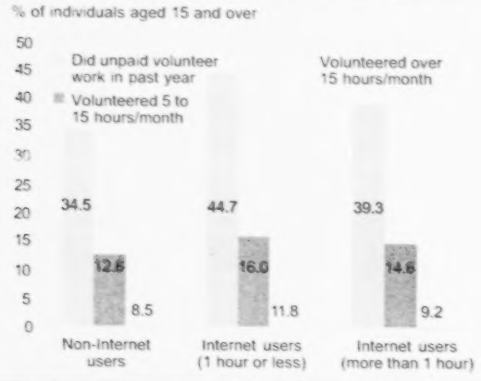

**Source:** Statistics Canada, Canada Survey of Giving, Volunteering and Participating, 2004.

12. Differences in use of the Internet to search for volunteer opportunities were statistically significant across all age groups appearing in Chart 3, at a 95% level of confidence.

However, there were smaller (and in some cases insignificant) differences between age groups in the actual use of the Internet to carry out volunteer activities.

A separate question is whether those who use the Internet devote as much time to volunteering as non-users. Data from Statistics Canada's 2005 GSS on time use show that moderate users of the Internet were most likely to volunteer, and spent more time volunteering, than persons who spent more than one hour online per day, as well as non-users. Chart 4 details the participation rates for volunteering among the different groups of Internet users and non-users, as well as the proportion of those individuals who reported that they volunteered for between 5 and 15 hours, or more than 15 hours, on a monthly basis. Note that the data in Chart 4 do not control for age or other characteristics.

**Chart 4**
**Incidence of volunteering and hours volunteered, Internet users and non-users, Canada, 2005**




**Source:** Statistics Canada, General Social Survey Cycle 19: Time Use, 2005.

Additional analysis using the time diary information available from the 2005 GSS confirms that moderate users of the Internet were most likely to spend time volunteering, while controlling for a number of respondent characteristics. A multiple classification analysis (MCA) was performed to assess whether Internet users and non-users differed with respect to the amount of time they devoted to volunteer activities, while controlling for age, sex, number of children living in the household and education, as well as time spent at location of work and the day of week the time diary was completed. After controlling for these factors, results revealed that persons spending more than one hour online per day and non-users did not differ significantly in terms of the time they devoted to volunteer activities. However, moderate users of the Internet (those spending one hour or less online per day) were found to spend significantly more time on volunteer activities than non-users.

## 3.1 Socio-demographic factors influencing use of the Internet

Differences in access to and use of the Internet have been identified among Canadians depending on age, gender, income, education, and location (McKeown and Noce 2007, Sciadas 2002). Moreover, studies of the digital divide have identified relationships between Internet access and use and many of these socio-demographic factors in many countries (Sciadas 2003, 2005, OECD 2001).

The analysis which follows looks more closely at three particular socio-demographic groups with distinct patterns of Internet use: recent immigrants, Canadians living in rural areas, and older Canadians.

## 3.2 Internet use among new Canadians

Canadian research has identified distinct patterns of Internet use by immigrants to Canada, especially recent immigrants. In 2003, the Statistics Canada and OECD *International Adult Literacy and Skills Survey* showed that immigrants in Canada and several other countries have high levels of home computer use (Veenhof 2006b). The same survey also found a link between language most often spoken in the home and time spent on computers: 37.3% of those who most often spoke a language other than English or French at home spent 30 or more hours per month on their home computer. This compared with only 28.6% of those Canadians reporting English and 26.4% of those reporting French.

Recent immigrants are also more likely than Canadian-born individuals and other immigrants to use the Internet to communicate with their family and friends. The 2003 GSS on social engagement found that 56.0% of Canadians aged 25 to 54 who immigrated to Canada between 1990-2003 used the Internet in the previous month to communicate with friends, compared with 48.1% of Canadian-born individuals. Similarly, 55.9% of recent immigrants used the Internet to communicate with family, compared with 42.6% of persons born in Canada (Schellenberg 2004; see also Table 3 of the current study). An earlier study based on data from Statistics Canada's 2000 GSS also found that foreign-born Internet users were more likely to use email on a daily basis to communicate with relatives and friends than those born in Canada (Dryburgh 2001). There are likely a number of factors related to recent immigrants' elevated use of the Internet for this purpose. For instance, the Internet represents a cost-effective way for immigrants to communicate with family abroad. Also, recent immigrants have, on average, relatively high levels of education—another factor associated with elevated use of the Internet (Schellenberg 2004).[13]

13. Future work could study differences in use of the Internet among immigrants and Canadian-born persons, while also controlling for characteristics such as education, age and income.

The East York interviews conducted by NetLab provide a case study illustrating this phenomenon (Kayahara et al. 2005). 39% of the interviewees were immigrants and almost half of them had immigrated to Canada in the last 5 years. For nearly all of the recent immigrants, using the Internet to connect with friends and family back home was a top priority.

The Internet has been more useful for maintaining ties than for making new ties in Canada. This is not specific to immigrants, for the East York study revealed that less than 1% of all close personal ties were formed on the Internet alone (Wellman and Hogan et al. 2006). Immigrants found the Internet particularly useful for gathering information about Toronto, and choosing to migrate to it instead of other cities. However, the study found that once they arrived, like most Canadians, immigrants still made new ties through old means.

Recent data from Statistics Canada's 2007 CIUS detail some of the other differences in how immigrants (and, in particular, recent immigrants) use the Internet compared with Canadian-born persons. Table 7 compares the online activities of Canadian-born home Internet users with two groups of immigrants who also used the Internet from home: those who immigrated to Canada prior to 1997, and those who immigrated in 1997 or later.[14] Recent immigrants and Canadian-born persons were equally likely to use the Internet for a number of communication-related online activities, but recent immigrants were more likely to make telephone calls online and to use instant messaging. Compared with Canadian-born individuals, recent immigrants also showed elevated use of certain types of cultural information online. For example, three-quarters (75.0%) viewed news or sports information online, compared with 62.1% of Canadian-born home Internet users. Recent immigrants were also active in using the Internet to download music, movies or television programs and listen to online radio.

These findings emphasize that the Internet can be an essential resource for keeping in contact with family and friends abroad, and may also offer ethnic and foreign language cultural content which may be difficult for recent immigrants to find in their immediate physical community.

**Table 7**
**Selected activities of home Internet users[1], by immigration status, Canada, 2007**

| | Canadian-born | Immigrated 1997 or later | Immigrated before 1997 |
|---|---|---|---|
| | % of home users performing activity | | |
| **Communication** | | | |
| Email | 92.3 | 92.9 | 88.6 |
| Using an instant messenger | 50.4 | 62.0 | 38.8 |
| Communicating with Canadian government | 25.4 | 25.7 | 26.3 |
| Contribute content (blogging, discussion groups, photos) | 20.9 | 17.4 | 16.7 |
| Make telephone calls over the Internet | 6.4 | 26.8 | 12.5 |
| **Local information** | | | |
| Obtaining weather reports or road conditions | 71.2 | 65.9 | 61.4 |
| Viewing the news or sports | 62.1 | 75.0 | 65.4 |
| Researching community events | 44.4 | 45.0 | 42.6 |
| **Other information** | | | |
| Travel information or making travel arrangements | 65.4 | 66.4 | 68.6 |
| Searching for medical or health-related information | 59.5 | 53.3 | 55.5 |
| Searching for Canadian government information | 51.5 | 54.6 | 49.0 |
| Job search | 30.7 | 58.8 | 28.6 |
| **Leisure** | | | |
| General browsing for fun or leisure (surfing) | 78.3 | 62.4 | 67.8 |
| Obtaining or saving music | 45.6 | 53.8 | 31.5 |
| Playing games | 41.4 | 31.9 | 25.5 |
| Listening to radio over the Internet | 27.6 | 33.5 | 26.3 |
| Downloading or watching television or movies | 19.1 | 34.1 | 18.5 |

1. This table covers individuals aged 16 and older who said they used the Internet from home for personal use in the 12 months preceding the survey. A very small proportion of Internet users who lived in Canada at the time of the survey but did not hold landed immigrant status are excluded from the table.

**Source:** Statistics Canada, Canadian Internet Use Survey, 2007.

14. For the purposes of this study, immigrants were divided into quartiles or four equal groups, based on year of immigration. Immigrants who arrived in Canada in 1997 or later represent one-quarter of all immigrants in the 2007 CIUS. These persons are defined as 'recent immigrants.' This definition is based on the distribution of the data, and may differ from definitions used in other research.

## 3.3 Internet use by rural Canadians

The rural digital divide—the gap in Internet access and use between those living in urban centres and those living in rural areas—has been a subject of research in many countries including Canada (Standing Senate Committee on Agriculture and Forestry 2008, McKeown and Noce 2007, Veenhof, Neogi and van Tol 2003, National Broadband Task Force 2001). Significantly fewer Canadians living in rural areas use the Internet than urban Canadians. Statistics Canada's 2007 CIUS found that 75.6% of urban Canadians used the Internet for personal use (from any location) compared to 65.2% of rural Canadians. Rural Canadians were also less likely to use the Internet from home (59.5%), compared to Canadians living in urban areas (71.4%). A recent study concluded that a rural digital divide persists even when controlling for other factors, such as age, gender, income and education (McKeown and Noce 2007).

Yet, the Internet affords opportunities for rural Canadians to reduce the barriers of distance. For example, it enhances their ability to access goods, services and information over the Internet that are not readily available in their immediate communities, to participate in distance education when access to certain schools or programs becomes otherwise difficult (or prohibitive) due to location, and to use telemedicine to talk with medical specialists or send test results to distant hospitals for interpretation. Like immigrants, rural Canadians value the Internet's ability to communicate with friends and relatives who live far away, usually in Canadian cities.[15]

Using data from the 2007 CIUS, Table 8 reveals that urban home Internet users were slightly more likely to perform a number of online activities, most notably using the Internet for financial information and various forms of communication and leisure. Broadband Internet access facilitates a number of high-bandwidth

**Table 8**
**Selected activities of home Internet users[1], by location of residence[2], Canada, 2007**

| | Urban | Rural | Urban: Rural |
|---|---|---|---|
| | % of home users performing activity | | Ratio |
| **Communication** | | | |
| Email | 92.6 | 89.2 | 1.0 |
| Using an instant messenger | 50.2 | 48.5 | 1.0 |
| Communicating with Canadian government | 25.8 | 24.5 | 1.1 |
| Contribute content (blogging, discussion groups, photos) | 21.2 | 16.5 | 1.3 |
| Make telephone calls over the Internet | 9.6 | 5.2 | 1.8 |
| **Local information** | | | |
| Obtaining weather reports or road conditions | 69.3 | 71.4 | 1.0 |
| Viewing the news or sports | 65.5 | 56.6 | 1.2 |
| Researching community events | 46.0 | 37.1 | 1.2 |
| **Financial information** | | | |
| Online banking or bill payment | 63.9 | 56.7 | 1.1 |
| Researching investments | 26.7 | 20.5 | 1.3 |
| **Other information** | | | |
| Travel information or making travel arrangements | 67.8 | 59.2 | 1.1 |
| Searching for medical or health-related information | 59.4 | 55.2 | 1.1 |
| Searching for Canadian government information | 52.5 | 46.9 | 1.1 |
| Job search | 34.4 | 23.9 | 1.4 |
| **Education** | | | |
| Education, training or school work | 51.4 | 41.8 | 1.2 |
| **Leisure** | | | |
| General browsing for fun or leisure (surfing) | 75.8 | 76.5 | 1.0 |
| Obtaining or saving music | 45.7 | 39.4 | 1.2 |
| Playing games | 38.0 | 41.0 | 0.9 |
| Listening to radio over the Internet | 29.2 | 23.5 | 1.2 |
| Downloading or watching television or movies | 21.9 | 13.8 | 1.6 |

1. This table covers individuals aged 16 and older who said they used the Internet from home for personal use in the 12 months preceding the survey.
2. 'Urban' is defined as consisting of all Census Metropolitan Areas (CMA) and Census Agglomerations (CA). 'Rural' is simply the complement (for example, Non-Census Metropolitan Areas (Non-CMA)/Non Census Agglomerations (Non-CA)).

**Source:** Statistics Canada, Canadian Internet Use Survey, 2007.

15. For example, a recent NetLab study in rural Chapleau (Ontario) cited a respondent who reported that he looks at his infant grandson in another city "all the time" through a webcam rigged over his crib (Collins and Wellman 2008).

applications, such as downloading music, listening to Internet radio and watching television online, activities which are significantly more popular among urban Canadians than persons living in rural areas. Urban users were also more likely to obtain travel information, view news and sports, research community events and go online for educational or training purposes compared with their rural counterparts. However, rural users were more likely than urban users to play games online with others. Differences in use of the Internet for instant messaging, communicating with the Canadian government, obtaining weather reports or road conditions, and general browsing for fun or leisure were not statistically significant. The overall pattern however is that urban Internet users generally participate in a greater variety of online activities compared with rural residents of Canada.

Although the Internet represents a significant resource for some rural users, the results above confirm that there remains not only a divide in *access* to the Internet between urban and rural users, but also a gap in *use* of the Internet. This 'use divide' emphasizes that merely assessing the availability of Internet infrastructure is not enough to adequately measure the impacts the Internet may have on the ability of all citizens to participate in a digital society (Middleton and Ellison 2008, Montagnier 2007, OECD 2004).

According to a recent NetLab study, the rural residents of Chapleau, Ontario, report that the availability of broadband is a key to their diversified use of the Internet (Behrens, Glavin and Wellman 2007, Collins and Wellman 2008). Such availability remains an issue in some rural and remote parts of Canada, according to the latest CIUS figures. While the vast majority (91.4%) of urban home Internet users had a high speed connection in 2007, just under three-quarters (72.5%) of rural users reported using a high speed connection from home. In addition, more than one-half of rural residents using a slower service reported that a high speed connection was not available in their area (Statistics Canada 2008). Given relationships that may exist between broadband access and the amount of time users spend online as well as the types of activities they engage in (Montagnier 2007), the lack of availability of broadband connections in some rural and remote areas is likely to continue to play a role in explaining some of the differences in the way the Internet is used in these areas. Indeed, Canadians living in rural and remote areas report that the range of online activities they participate in, and the efficiency with which they perform these activities, are constrained by the lack of high-speed service (Standing Senate Committee on Agriculture and Forestry 2008, Cobb 2007).

### 3.4 Internet use by older Canadians

Age is another factor associated with levels of access to the Internet in Canada and many parts of the world (OECD 2001, 2004, Sciadas 2002, 2003, US Dept. of Commerce 2004). CIUS data reveal that 60.8% of Canadians aged 55 to 64 accessed the Internet for personal reasons in 2007, and a substantially smaller proportion (28.8%) of seniors aged 65 and above did so. By contrast, the rates of Internet use (from any location) for personal reasons in 2007 for other age groups were 93.1% for individuals aged 16 to 34 and 79.8% for individuals aged 35 to 54.

Senior Canadians also use the Internet differently than younger Canadians (Veenhof 2006c, Silver 2001). In 2007, young adult users were appreciably more likely to use the Internet for instant messaging, contributing online content, viewing news or sports, downloading music and television or movies and listening to online radio (Table 9). Unlike many other activities, email use is equally prevalent among the three oldest age categories shown, perhaps reflecting the tendency of older users to use email to communicate with family (this is consistent with results from earlier surveys: see for example Table 3 of this study). In fact, other studies have shown that online seniors who email family members are likely to say they communicate more often with family members now and a majority feel that the Internet has improved their connections with family (Thayer and Ray 2006, Howard, Rainie and Jones 2001). CIUS data also show that seniors were more likely than middle-aged Canadians to go online to play games with others. Nonetheless, online gaming was most popular among young Canadians aged 16 to 34.

Seniors were also active when it came to searching for health information (52.4%) online. A number of activities grew in popularity among seniors in 2007 compared with 2005, including instant messaging and viewing news or sports information online. That said, these activities remained more popular among young persons. While older Canadians generally participated in fewer online activities, they were quite active users of email and online games when compared with other age groups.

### 4.1 Revisiting the Internet Debate

The data presented in this paper contribute to our understanding of how the Internet is aiding the transformation of relations—with family and relatives, with community members, in voluntary organizations, and at work (not studied here). Although there has been much talk about negative effects of the Internet, the evidence presented here does not support the notion that the Internet is increasing social isolation. Rather, research is showing that the Internet is fostering participation with community members and in social organizations. To a great extent, this is basically an enhancement of existing relationships—people now have other media to connect them. In addition to in-person encounters, scheduled meetings, landline and mobile phones, they can email, chat online, send instant messages, blog and comment, and stay mutually aware through social networking sites.

By ignoring the new forms of social engagement that the Internet has fostered, observers might come to the conclusion that the Internet is the domain of asocial individuals. On the contrary, the present study addresses this claim by illustrating the Internet's emerging role in social and civic life. It finds that most Internet users socialize and make plans for gatherings, and get a substantial amount of important everyday information—such as news and weather—through the

Internet. With respect to social cohesion, Internet users also use new forms of civic engagement that are not encompassed by conventional measures.

All of the sources used in this study—several national surveys from Statistics Canada and the Connected Lives studies in East York (Toronto) and Chapleau (rural Ontario) by the University of Toronto's NetLab—show that the majority of Canadians use the Internet. As rates of access to the Internet escalate, the questions shift from the old concern of access to the Internet to how people are using the Internet and the impacts it is having on their lives. Differences in rates of Internet access are now accompanied by interest in what differences—in terms of how the Internet is used—mean for different parts of society. This 'use divide' reflects differences in peoples' engagement with a variety of online activities and their Internet skills (Montagnier 2007, OECD 2004, Hargittai 2002). Although some gaps persist between certain socio-economic groups in terms of both access to and use of the Internet, the evidence suggests that not only has Internet access increased rapidly over a relatively short time in Canada, but that the level of use also tends to increase with individuals' level of experience (or years spent) on the Web (Quan-Haase and Wellman et al. 2002, Boase et al. 2006, Underhill and Ladds 2007). In short, people are using the Internet because they want to, and not because they have to. These findings are consistent with recent findings that *"the Information Society is also a talkative society"* (Sciadas 2006, p. 13), where: "...key outcomes of ICTs are manifested in shifting behavioural patterns everywhere, with real consequences. Moreover, the pattern of communications has changed, something exemplified by the rise in long distance and the explosion in international calling made possible by liberalized markets and falling prices. Such expanded circles of communication have found an even better expression through e-mail that knows no boundaries. People make the *choice* to expand their associations and move from geographically-defined communities to communities of interest. As well, they are willing to pay for their choices" (Sciadas 2006, p. 20).

Further, evidence from NetLab's East York and Chapleau studies suggests that evolving patterns of information and communications technology use have resulted in some social shifts:

- Households have moved away from being a combination of tight leisure groups during nights and weekends but with little workday communication, to becoming networked households. On the one hand, each member of the household is more apt to go their separate ways physically, on separate agendas. However, spouses and their children use email and mobile phones to keep in more frequent contact with each other even as they do not see each other in person (Kennedy and Wellman 2007).
- Communities have become complex social networks, in which many of those in a person's social network are not directly connected with each other and where Internet contact has supplemented and to some extent replaced

**Table 9**
**Selected activities of home Internet users[1], by age group, Canada, 2007**

| | Age 16 to 34 | Age 35 to 54 | Age 55 to 64 | Age 65 and over |
|---|---|---|---|---|
| | % of home users performing activity | | | |
| **Communication** | | | | |
| Email | 95.3 | 89.5 | 90.2 | 89.8 |
| Using an instant messenger | 72.9 | 37.1 | 30.5 | 25.6 |
| Communicating with Canadian government | 22.0 | 29.1 | 28.0 | 19.7 |
| Contribute content (blogging, discussion groups, photos) | 33.6 | 13.2 | 9.1 | 3.7[E] |
| Make telephone calls over the Internet | 10.1 | 8.7 | 6.1 | 5.0[E] |
| **Local information** | | | | |
| Obtaining weather reports or road conditions | 72.0 | 71.8 | 62.2 | 56.1 |
| Viewing the news or sports | 69.8 | 62.1 | 55.1 | 51.8 |
| Researching community events | 46.1 | 47.1 | 36.9 | 27.5 |
| **Other information** | | | | |
| Travel information or making travel arrangements | 65.2 | 68.4 | 65.0 | 58.8 |
| Searching for medical or health-related information | 56.9 | 61.0 | 59.0 | 52.4 |
| Searching for Canadian government information | 50.2 | 55.5 | 49.9 | 34.7 |
| **Leisure** | | | | |
| General browsing for fun or leisure (surfing) | 86.2 | 72.7 | 64.8 | 53.8 |
| Obtaining or saving music | 67.9 | 33.7 | 19.3 | 15.1 |
| Playing games | 50.8 | 30.7 | 27.1 | 35.7 |
| Listening to radio over the Internet | 35.4 | 26.1 | 18.7 | 13.4 |
| Downloading or watching television or movies | 32.9 | 13.8 | 8.2 | 5.8[E] |

[E] - use with caution
1. This table covers individuals aged 16 and older who said they used the Internet from home for personal use in the 12 months preceding the survey.
**Source:** Statistics Canada, Canadian Internet Use Survey, 2007.

in-person contact. Although heavy users of the Internet may not have as much in-person contact with friends and relatives, they have a great deal of electronic contact with their network members, and they often use the Internet to arrange meetings. Their overall level of contact is high, with the Internet and telephone (both mobile and wired) adding to in-person contact. Moreover, the Internet has been a boon to staying in contact with far-flung friends and relatives who do not live within comfortable travel distance. This pattern is especially apparent among new Canadians and rural Canadians.

- The way people find information is changing. Rather than a limited dialectic between mass media and friends' opinions, evidence reveals that many people now search actively online for what they have heard about, check out their information with friends and with other media, and then go search again. The result is that many people are actively using the Internet to inform themselves where information from traditional media outlets may have been limited.

Widespread use has its consequences. Social transformation is occurring along with participation, but evidence shows that we should expect neither a dysfunctional society of loners nor a blissful society of happy networkers. Rather, we are facing a society that is differently cohesive from the one we have known. As Sciadas' (2006) recent review of Canadians' communications patterns put it:

> ... (T)he only inference that can be supported is that people communicate more than ever and their patterns of associations are wider. Whether or not this is done with shorter communication sessions remains to be confirmed, but it is definitely with more frequency. In any event, the theories of people becoming closed-in or socially withdrawn are not supported by the evidence presented here. (Surely there are those who spend all-day in on-line solitude, but this is not the case for the society at large). The pattern of communication and interaction has changed. The reality is that people are talking to other people – whether to the person next door or to someone thousands of miles and time zones away. Thus, *it is not that people are becoming anti-social; it is that people are becoming differently social* (p. 17).

## 4.2 Conclusions

In 2000, following a workshop of officials and academics tasked with identifying "desired indicators" of socially cohesive activities, as well as indicators of activities that work against social cohesion, a report by the Canadian Council on Social Development (CCSD) on "Social Cohesion in Canada: Possible Indicators" stated: "Hours spent watching TV/playing on computer/playing video games can be considered individualized activities which take away potential time for interaction with family, friends, neighbours etc." (p. 53).

Eight years later, grouping these three activities together—TV, computer, and video games—is perhaps less meaningful. Is "watching TV" the same as "playing on computer" and "playing video games?" What exactly does "playing on computer" mean today? Is it playing *against* the computer or *with* other users in online communities? Does "playing on computer" refer to spending time on the computer, does it include information gathering and even communication like email, or is it strictly related to what we would now call "gaming?" How does it differ from "playing video games?" While a clear difference may have once existed between "screen time" and time spent interacting with others, today the distinction is less clear.

By contrast, a 2006 Australian study that considered how different levels of Internet access affected social and civic participation noted that: "Any decline in social capital cannot be attributed to the Internet... There are strong indications that the reverse is the case: that those with Internet access are more likely to be actively involved in such social capital building activities as volunteering to work for community organisations and lobbying politicians... Social capital can occur in new forms that have emerged from Internet interactions and relationships, often labelled as 'virtual', but in effect as real as any other" (Alessandrini 2006). Unfortunately, the Australian study only considers Internet access generally, and then looks at how Internet users compare with non-users in their social activities. It says nothing about what people actually did when they were online.

This is where the present article fills a knowledge gap. It presents a comprehensive look at what Canadians do when they are online, how their online behaviour is interrelated with their offline behaviour, and how it is embedded in people's lives. The findings reveal a two-sided tale of how social cohesion is being transformed through technology. It is a story which has heavy Internet users spending less time in in-person contact with family and friends, and knowing their neighbours less well than others. However, much of what these users do online qualifies as social capital-building activities. Emailing and chatting, for instance, are social activities mostly carried out with friends and family.

Further examination of different socio-demographic groups reveals that they have embraced technology not to escape social contact or other traditional activities but to enhance them. For example, Internet users spend more time reading books than non-users. Young Canadians aged 15 to 24 are the most active in using the Internet to search for volunteer opportunities, and approximately one-fifth of all volunteers use the Internet to carry out volunteer activities, with moderate users of the Internet being especially active in volunteering. Recent immigrants use the Internet to a greater extent than other Canadians, most likely to get information and maintain contacts in the language in which they are the most proficient. Older Canadians who use the Internet are nearly as likely as young Canadian Internet users to send and receive email. And Canadian seniors are more likely to play games with others online than middle-aged adults.

Does this mean immigrants are not learning English or French, or that seniors are becoming reclusive? What is more likely is that immigrants and seniors are finding companionship online where few opportunities exist in their physical environment. But, as the data also show, people prefer to spend time in direct in-person contact with others. In other words, people are using the Internet to create and enhance opportunities for networking where there were none before, while still valuing a chat over coffee as much as a chat online.

The challenge is that present indicators of social cohesion may not capture the transformation of communication patterns and the contribution that technology is making to social networking. When Putnam (2004) states that "Dense social networks in a neighborhood—barbecues or neighborhood associations or whatever—can deter crime, for example, even benefiting neighbors who don't go to the barbecues or belong to the association," he clearly does not have neighbours in mind who organize and network online. And when the CCSD report states that "frequency of contact with family, friends" is "a direct indicator of social participation and participation in intimate social networks," it does not specify whether such contact is limited to in-person interaction, or whether it also includes telephone and Internet contact—essentially email at the time, but now expanded to instant messaging, social networking sites, blogs, and so on.

Putnam's evocative image of a neighbourhood barbecue is probably more appealing to most than an image of friends and family communicating by sitting in front of their computer screens. Yet, the data presented here alert us to how important it will be to properly capture online social activities in any social indicators. If Canadians shift some of their interaction with family, friends and neighbours to online environments there may, indeed, be less in-person contact. Consequently, indicators measuring only offline activities would show the social cohesion glass emptying, while it is actually filling up through increasing online contact.

The evidence shows that, apart from a small minority of reclusive, heavy users, offline activities are not entirely displaced by online ones. Rather, most people desire in-person contact with family, friends and neighbours. They will also use whatever tools are available to them—telephone, the Internet—to maintain their ties when they are unable to get together. In addition, there are also those communities that would never have a chance of coming together physically. These virtual social networks can provide support for people with specialized interests where physical gatherings with typical limitations of time and space would simply not be feasible.

Therefore the following main findings and considerations become relevant:

- More and more, community is extending beyond face-to-face interaction with small groups of neighbours. In order to understand how social cohesion is being transformed, it is important to capture the full gamut of online and offline social activities.
- The Internet and its users are becoming increasingly diverse. This study has illustrated the extent to which Internet users with different backgrounds, based on social and demographic characteristics, vary in terms of the online activities they choose to participate in. In the case of the time use data, a distinction was also made between moderate and heavier users of the Internet. There remains a need to study the diversity of Internet users and behaviours further. Rather than relying on a simplistic categorization of Internet users and non-users, there would be a benefit to recognizing the sensitivity of the contexts and conditions under which various social activities are conducted by different social actors.
- The results suggest a need to be open to the possibility that social networks may become less intense but more numerous. Whether more but shallower networks are better than fewer but more in-depth networks remains to be studied.
- Care should be taken not to assume that new activities in Canadians' lives mean that traditional activities are discarded, especially when considering Internet use through time use surveys. This might sound counterintuitive ("the day still has only 24 hours") but as people multitask in unfamiliar ways (watching TV, chatting, talking on the phone all at the same time) there is good evidence that the notion of "more effectively deployed attention" (Benkler 2006) is real. Recent Canadian data reveal that as many as one-quarter of Canadians watch television while accessing the Internet, and that one-third listen to the radio while also going online (Canadian Radio-television and Telecommunications Commission (CRTC) 2007). These multi-tasking activities are especially popular among young Canadians.

In closing, the rapid diffusion and the ever-widening scope of Internet use have given rise to both utopian and dystopian views with regards to its impact on society. While some may think that older media and societal arrangements are already obsolete and irrelevant, "traditionalists" tend to see the Internet only as a pernicious imposition on traditional community. Yet, the Internet has strengths in its own right. Its present and future impacts should be judged on their own merit and must be clearly separated from nostalgic notions of pre-Internet community living, where people sat around pubs, cafés and parlours communing—something that has not really been the case for a very long time. Particularly in Canada, long, cold winters encouraged Canadians to stay home and watch television, listen to the radio and read. Thus the advent of the Internet is breeding a more social era, with active communication and information seeking activities compared to the more passive traditional forms of entertainment such as television.

## References

Alessandrini, Megan. 2006. *Getting Connected: Can Social Capital be Virtual?* www.webology.ir/2006/v3n4/a33.html (accessed August 13, 2008).

Amato, Paul, Alan Booth, David Johnson and Stacy Rogers. 2008. *Alone Together: How Marriage in America is Changing.* Cambridge, MA. Harvard University Press.

Ball-Rokeach, Sandra, Yong-Chan Kim and Sorin Matei. 2001. "Storytelling neighborhood: Paths to belonging in diverse urban environments." *Communication Research* Vol. 28. p. 392-428.

Behrens, Dean, Paul Glavin and Barry Wellman. 2007. *Connected Lives North - Chapleau: Report on the Introduction of High-Speed Internet to a Northern Ontario Rural Community.* Bell Canada and University of Toronto, May.

Benkler, Yochai. 2006. *The Wealth of Networks: How Social Production Transforms Markets and Freedom.* New Haven, CT. Yale University Press.

Bessière, Katherine, Sara Kiesler, Robert Kraut and Bonka Boneva. 2008. "Effects of Internet use and social resources on changes in depression," *Information, Communication and Society* Vol. 11, no. 1. p. 47-70.

Boase, Jeffrey. 2008. "Personal networks and the personal communication system: Using multiple media to connect," *Information, Communication and Society* Vol. 11, no. 4. p. 490-508.

Boase, Jeffrey, John B. Horrigan, Barry Wellman and Lee Rainie. 2006. *The Strength of Internet Ties: The Internet and Email Aid Users in Maintaining Their Social Networks and Provide Pathways to Help When People Face Big Decisions.* Pew Internet and American Life Project, Washington D.C., January. www.pewinternet.org/ (accessed March 15, 2007).

Canadian Council on Social Development (CCSD). 2000. *Social Cohesion in Canada: Possible Indicators.* www.ccsd.ca/pubs/2001/si/sra-542.pdf (accessed August 13, 2008).

Canadian Radio-television and Telecommunications Commission (CRTC). 2007. *Broadcasting Policy Monitoring Report 2007.* Catalogue no. BC9-1/2007E-PDF. www.crtc.gc.ca (accessed June 5, 2008).

Carrasco, J.A. and E.J. Miller. 2006. "Exploring the propensity to perform social activities: Social networks approach." *Transportation* Vol. 33. p. 463-480.

Castells, Manuel. 2000. *The Rise of the Network Society.* 2nd ed. Oxford, Blackwell Publishing.

Castells, Manuel, Imma Tubella, Teresa Sancho, and Barry Wellman. 2003. *The Network Society in Catalonia: An Empirical Analysis.* Barcelona, Universitat Oberta Catalunya.

Cobb, Chris. 2007. "Rural communities still waiting to ride information highway." *Ottawa Citizen,* Mar. 25.

Cole, Jeffrey and John P. Robinson. 2002. "Internet use, mass media and other activity in the UCLA data." *IT and Society.* Vol. 1, no. 2. p. 121-133.

Collins, Jessica and Barry Wellman. 2008. *Connected rural lives: Chapleau Ontario on and offline.* Presented to the Rural Sociology Association, Manchester, NH. July.

Dryburgh, Heather. 2001. *Changing our Ways: Why and how Canadians use the Internet*, Statistics Canada Catalogue no. 56F0006XIE, Mar. 26. http://www.statcan.ca/bsolc/english/bsolc?catno=56F0006X (accessed August 12, 2008).

Fischer, Claude. 2004. "Bowling alone: What's the score?" *Social Networks* Vol. 27, no. 2. p. 155-67.

Fischer, Claude. 1982. *To Dwell Among Friends.* Chicago. Chicago University Press.

Hall, Michael, David Lasby, Glenn Gumulka and Catherine Tryon. 2006. *Caring Canadians, Involved Canadians: Highlights from the 2004 Canada Survey of Giving, Volunteering and Participating.* Statistics Canada Catalogue. no. 71-542-XIE. http://www.statcan.ca/bsolc/english/bsolc?catno=71-542-X (accessed August 13, 2008).

Hamburger, Y.A. and Ben-Artzi, E. 2000. "The relationship between extraversion and neuroticism and the different uses of the Internet." *Computers in Human Behavior* Vol. 16. p. 441–449.

Hargittai, Eszter. 2002. "Second-level digital divide: Differences in peoples' online skills." *First Monday.* Vol. 7.

Harmon, Amy. 1998. "Sad, lonely world discovered in cyberspace." *New York Times,* Aug. 30. p. 1.

Heilemann, John. 2007. "When they were young." *New York Magazine.* Oct. 22.

Howard, Philip N. 2006. *New Media Campaigns and the Managed Citizen.* New York, Cambridge University Press.

Howard, P., L. Rainie and S. Jones. 2001. "Days and nights on the Internet: The impact of diffusing technology." *American Behavioral Scientist.* Vol. 45. p. 450-472.

Inglehart, Ronald. 1990. *Culture Shift in Advanced Industrial Society.* Princeton, NJ. Princeton University Press.

Jennings, M. and Zeitner, C. 2003. "Internet use and civic engagement." *Public Opinion Quarterly.* Vol. 67. p. 311-334.

Kadushin, Charles. 2002. "The motivational foundation of social networks." *Social Networks* Vol. 24. p. 77-91.

Katz, James and Ronald Rice. 2008. "Falling into the Net: Main Street America playing games and making friends online." *Communications of the ACM.* (in press).

Kayahara, Jennifer and Barry Wellman. 2007. "Searching for culture – high and low." *Journal of Computer-Mediated Communication,* April. http://jcmc.indiana.edu/vol12/issue3/kayahara.html (accessed August 13, 2008).

Kayahara, Jennifer, Barry Wellman, Jeffrey Boase, Bernie Hogan and Tracy Kennedy. 2005. *Canadians, Culture, and Computers.* Report to Heritage Canada by Wellman Associates. July 30.

Kennedy, Tracy and Barry Wellman. 2007. "The networked household," *Information, Communication and Society.* Vol. 10, no. 5. p. 647-70.

Keown, Leslie-Anne. 2007. "Keeping up with the times: Canadians and their news media diet." *Canadian Social Trends.* No. 82. Statistics Canada Catalogue no. 11-008-XWE. Mar. 27. http://www.statcan.ca/bsolc/english/bsolc?catno=11-008-X20070039610 (accessed August 13, 2008).

Kraut, Robert, Sara Kiesler, Bonka Boneva and Irina Shklovski. 2005. "Examining the impact of Internet use on TV viewing: Details make a difference." in Robert Kraut, et al. (eds.) *Computers, Phones, and the Internet: Domesticating Information Technology.* Series in Human-Technology Interaction. Oxford University Press.

Kraut, Robert, Sara Kiesler, Bonka Boneva, Jonathon Cummings, Vicki Helgeson and Anne Crawford. 2002. "Internet paradox revisited." *Journal of Social Issues* Vol. 58, no. 1. p. 49-74.

Kraut, Robert, Sara Kiesler, Tridas Mukhopadhyay, William Scherlis and Michael Patterson. 1998. "Social impact of the Internet: What does it mean?" *Communications of the ACM.* Vol. 41, no.12. p. 21-22.

Larose, R., M.S. Eastin and J. Gregg. 2001. "Reformulating the Internet paradox: Social cognitive explanations of Internet use and depression." *Journal of Online Behavior* Vol. 1, no. 2.

Lijphart, Arend. 1997. "Unequal participation: Democracy's unresolved dilemma." *American Political Science Review.* Vol. 91. p. 1-14.

Mallaby, Sebastian. 2006. "Why so lonesome?" *Washington Post.* June 26, p. A21.

McKeown, Larry and Anthony Noce. 2007. *Factors Influencing Internet Use in Canada: Does Urban Size Matter?* Paper presented for the May 2007 Statistics Canada Socio-economic Conference, Ottawa.

McPherson, Miller, Lynn Smith-Lovin and Matthew E. Brashears. 2006. "Social isolation in America: Changes in core discussion networks over two decades." *American Sociological Review.* Vol. 71. p. 353-375.

Middleton, Catherine and Jonathan Ellison. 2008. "Understanding Internet usage among broadband households: A study of Household Internet Use Survey Data." *Working Paper Series.* No. 3. Statistics Canada Catalogue no. 88F006X. (in press).

Mok, Diana, Barry Wellman and Juan-Antonio Carrasco. 2008. *Does Distance Matter in the Age of the Internet?* International Sunbelt Social Network Conference, St. Petersburg, FL. January.

Montagnier, Pierre. 2007. *Broadband and ICT Access and Use by Households and Individuals.* Organisation for Economic Co-operation and Development. Paper prepared for the May 2007 Meeting of the Working Party on the Information Economy.

National Broadband Task Force. 2001. *The New National Dream: Networking the Nation for Broadband Access.* Report of the National Broadband Task Force, Industry Canada, Catalogue no. C2-574/2001E, June. http://broadband.gc.ca (accessed July 23, 2008).

Niemi, Richard G. and Herbert F. Weisberg (eds.). 2001. *Controversies in Voting Behavior.* Washington, D.C. CQ Press.

Olive, David. 2007. "Rumours of newspapers' demise." *The Toronto Star.* Apr. 8. http://www.thestar.com/Business/article/200650 (accessed August 13, 2008).

Organisation for Economic Co-operation and Development (OECD). 2004. *Information Technology Outlook 2004.* Paris. www.oecd.org/dataoecd/22/18/37620123.pdf (accessed August 12, 2008).

Organisation for Economic Co-operation and Development (OECD). 2001. *Understanding the Digital Divide.* Paris.

Payne, January W. 2006. "Caught in the Web: More peopie say heavy Internet use is disrupting their lives, and medical experts are paying attention." *The Washington Post.* Nov. 14. p. HE01.

Policy Research Initiative. 2003. *Social Capital Workshop June 2003: Concepts, Measurement and Policy Implications.* http://policyresearch.gc.ca/page.asp?pagenm=socap (accessed August 11, 2008).

Pronovost, Gilles. 2002. "The Internet and time displacement: A Canadian perspective." *IT and Society.* Vol. 1, no. 2.

Putnam, Robert. 2004. *Education, Diversity, Social Cohesion and Social Capital.* Note for discussion, Meeting of OECD Education Ministers, March 18-19, Dublin. www.oecd.org/dataoecd/37/55/30671102.doc (accessed August 11, 2008).

Putnam, Robert. 2000. *Bowling Alone: The Collapse and Revival and American Community.* New York. Simon and Schuster.

Quan-Haase, Anabel and Barry Wellman with James Witte and Keith Hampton. 2002. "Capitalizing on the Internet: Network capital, participatory capital, and sense of community," in Wellman, Barry and Caroline Haythornthwaite (eds.) *The Internet in Everyday Life.* p. 291-324. Oxford, Blackwell Publishing.

Robinson, John and Steven Martin. 2008. *IT and Activity Displacement: Behavioral Evidence from the U.S. General Social Survey (GSS).* Working paper, Department of Sociology, University of Maryland.

Schellenberg, Grant. 2004. *2003 General Social Survey on Social Engagement, Cycle 17: An Overview of Findings.* Statistics Canada Catalogue no. 89-598-XIE, July. http://www.statcan.ca/bsolc/english/bsolc?catno=89-598-X (accessed August 13, 2008).

Sciadas, George. 2006. "Our lives in digital times." *Connectedness Series.* No. 14. Statistics Canada Catalogue no. 56F0004MIE. http://www.statcan.ca/bsolc/english/bsolc?catno=56F0004M2006014 (accessed August 12, 2008).

Sciadas, George (ed.). 2005. *From the Digital Divide to Digital Opportunities: Measuring Infostates for Development.* National Research Council of Canada and Orbicom. http://www.orbicom.ca/media/projets/ddi2005/index_ict_opp.pdf (accessed August 12, 2008).

Sciadas, George. 2003. *Monitoring the Digital Divide... and Beyond.* National Research Council of Canada and Orbicom. http://www.orbicom.ca/projects/ddi2002/2003_dd_pdf_en.pdf (accessed August 12, 2008).

Sciadas, George. 2002. "Unveiling the digital divide." *Connectedness Series.* No. 7. Statistics Canada Catalogue no. 56F0004MIE. http://www.statcan.ca/bsolc/english/bsolc?catno=56F0004M2002007 (accessed August 13, 2008).

Shah, D., J. McLeod and S. Yoon. 2001. "Communication, context, and community: An exploration of print, broadcast, and Internet influences." *Communication Research.* Vol. 28, no. 4. p. 464-506.

Shaw, Lindsay H. and Larry M. Gant. 2002. "Users divided? Exploring the gender gap in Internet use." *Cyberpsychology and Behavior.* Vol. 5, no. 6.

Silver, Cynthia. 2001. "Internet use among older Canadians." *Connectedness Series.* No. 4. Statistics Canada Catalogue no. 56F0004MIE. Aug. 24. http://www.statcan.ca/bsolc/english/bsolc?catno=56F0004MIE2001004 (accessed August 13, 2008).

Standing Senate Committee on Agriculture and Forestry. 2008. *Beyond Freefall: Halting Rural Poverty.* Final Report. June. www.parl.gc.ca (accessed August 11, 2008).

Statistics Canada. 2008. "Canadian Internet Use Survey." *The Daily.* June 12. Statistics Canada Catalogue no. 11-001-XIE. http://www.statcan.ca/Daily/English/080612/d080612b.htm (accessed August 13, 2008).

Thayer, Stacy E. and Sukanya Ray. 2006. "Online communication preferences across age, gender, and duration of Internet use." *Cyberpsychology and Behavior.* Vol. 9, no. 4.

Turcotte, Martin. 2007. "Time spent with family during a typical workday, 1986 to 2005." *Canadian Social Trends.* No. 82. Statistics Canada Catalogue no. 11-008-XWE. Feb. 13. http://www.statcan.ca/bsolc/english/bsolc?catno=11-008-X20070039574 (accessed August 13, 2008).

Underhill, C. and C. Ladds. 2007. "Connecting with Canadians: Assessing the use of Government On-Line." *Connectedness Series.* No. 15. Statistics Canada Catalogue no. 56F0004MIE. http://www.statcan.ca/english/research/56F0004MIE/56F0004MIE2007015.htm (accessed May 5, 2008).

U.S. Department of Commerce. 2004. *A Nation Online: Entering the Broadband Age.* September.

Veenhof, Ben. 2006a. "The Internet: Is it changing the way Canadians spend their time?" *Connectedness Series*. No. 13. Statistics Canada Catalogue no. 56F0004MIE. http://www.statcan.ca/bsolc/english/bsolc?catno=56F0004MIE2006013 (accessed May 5, 2008).

Veenhof, Ben. 2006b. *Determinants and Outcomes of Heavy Computer Use: An International and Interprovincial Comparison.* Presentation at Statistics Canada Socio-economic Conference. Gatineau, Que. May 15.

Veenhof, Ben. 2006c. "The Internet experience of younger and older Canadians." *Innovation Analysis Bulletin.* Statistics Canada Catalogue no. 88-003-XIE. Vol. 8, no. 1. February. http://www.statcan.ca/bsolc/english/bsolc?catno=88-003-X20060019098 (accessed August 13, 2008).

Veenhof, Ben and Cindy Lecavalier. 2006. "Are Internet users tuning out traditional media?" *Innovation Analysis Bulletin.* Statistics Canada Catalogue no. 88-003-XIE. Vol. 8, no. 3. December. http://www.statcan.ca/bsolc/english/bsolc?catno=88-003-X20060039533 (accessed August 13, 2008).

Veenhof, Ben, Prabir Neogi and Bryan van Tol. 2003. "High-speed on the information highway: Broadband in Canada." *Connectedness Series*. No. 10. Statistics Canada Catalogue no. 56F0004MIE. http://www.statcan.ca/bsolc/english/bsolc?catno=56F0004MIE2003010 (accessed August 14, 2008).

Wang, Hua and Barry Wellman. 2008. *Social Connectivity in America: On and Offline.* International Sunbelt Social Network Conference. St. Petersburg, FL. January.

Wellman, Barry. 2001. "Physical place and cyber-place: Changing portals and the rise of networked individualism." *International Journal for Urban and Regional Research.* Vol. 25, no. 2. p. 227-52.

Wellman, Barry. 1979. "The community question: The intimate networks of East Yorkers." *American Journal of Sociology.* Vol. 84. p. 1201-31.

Wellman, B., and B. Hogan, with K. Berg, J. Boase, J.A. Carrasco, R. Côté, J. Kayahara, T.L.M. Kennedy and P. Tran. 2006. "Connected Lives: The project." Chapter 8 in Purcell, Patrick (ed.) *Networked Neighbourhoods.* Berlin. Springer Publishing.

Wellman, Barry and Bernie Hogan. 2004. "The immanent Internet." in McKay, Johnston (ed.) *Netting Citizens: Exploring Citizenship in the Internet Age*. p. 54-80. Edinburgh. Saint Andrew Press.

Wellman, Barry, Anabel Quan-Haase, Jeffrey Boase, Wenhong Chen, Keith Hampton, Isabel Isla de Diaz and Kakuko Miyata. 2003. "The social affordances of the Internet for networked individualism." *Journal of Computer-Mediated Communication* Vol. 8, no. 3. April. www.chass.utoronto.ca/~wellman/publications/social_affordances_of_the_internet_for_networked_individualism/social_affordances_of_the_internet_for_networked_individualism.pdf (accessed August 13, 2008).

Wellman, Barry and Scot Wortley. 1990. "Different strokes from different folks: Community ties and social support." *American Journal of Sociology.* Vol. 96. p. 558-88.

Wellman, Barry, Peter Carrington and Alan Hall. 1988. "Networks as personal communities." in Wellman, Barry and S.D. Berkowitz (eds.) *Social Structures: A Network Approach*. p. 130-184. Cambridge U.K. Cambridge University Press.

Williams, Cara. 2001. "Connected to the Internet, still connected to life?" *Canadian Social Trends.* No. 63. Statistics Canada Catalogue no. 11-008. Winter. http://www.statcan.ca/bsolc/english/bsolc?catno=11-008-X20010036 05 (accessed August 13, 2008).

Xenos, Michael and Patricia Moy. 2007. "Direct and differential effects of the Internet on political and civic engagement." *Journal of Communication.* Vol. 57. p. 704-18.

# Connectedness Series

| | | |
|---|---|---|
| 1 | **Plugging in: The Increase of Household Internet Use Continues into 1999** | *P. Dickinson and J. Ellison* |
| 2 | **Internet by Cable** | *D. April* |
| 3 | **Internet Shopping in Canada** | *J. Ellison, L. Earl, S. Ogg* |
| 4 | **Internet Use Among Older Canadians** | *C. Silver* |
| 5 | **Electronic Commerce and Technology Use** | *G. Peterson* |
| 6 | **Embracing e-business: *Does Size matter?*** | *S. Charles, M. Ivis, A. Leduc* |
| 7 | **Unveiling the Digital Divide** | *G. Sciadas* |
| 8 | **The State of Telecommunications Services** | *H. Ertl and H. McCarrell* |
| 9 | **A Profile of Employment in Computer and Telecommunications Industries** | *C. Vaillancourt* |
| 10 | **High-speed on the Information Highway: Broadband in Canada** | *B. Veenhof, P. Neogi and B. van Tol* |
| 11 | **Connectivity and Learning in Canada's Schools** | *H. Ertl and J. Plante* |
| 12 | **Literacy and Digital Technologies: Linkages and Outcomes** | *B. Veenhof, Y. Clermont and G. Sciadas* |
| 13 | **The Internet: Is It Changing the Way Canadians Spend Their Time?** | *B. Veenhof* |
| 14 | **Our Lives in Digital Times** | *G. Sciadas* |
| 15 | **Connecting with Canadians: Assessing the Use of Government On-Line** | *C. Underhill and C. Ladds* |
| 16 | **How Canadians' Use of the Internet Affects Social Life and Civic Participation** | *B. Veenhof, B. Wellman, C. Quell and B. Hogan* |